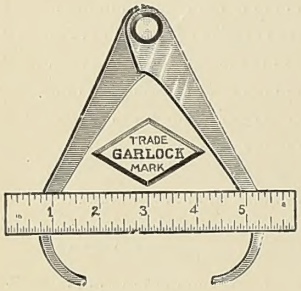
HAPPY NEW YEAR



WRITE FOR OUR
CATALOGUE No. 32

MARINE ENGINEERS

Our Seaboard Branches have, *at your service,* men who make a special study of *Marine Packing Propositions.* Talk over your troubles with them. Your Engineering experience and their Packing experience will surely solve the problem. Write ahead to any of the branches and the Special Marine Agent will be glad to meet you upon your arrival in port. His suggestions cost you nothing

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Codes.—A.B.C. 4th & 5th Editions.
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Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

TRADE PUBLICATIONS.

Free circulars are distributed by the Phosphor Bronze Company, Ltd., 87 Sumner street, Southwark, London, S. E., England, regarding the several phosphor bronze alloys which this company manufactures. Each alloy is suited to special needs, No. II being for valves, high-pressure steam fittings, pumps, propellers, etc.; No. VII for piston rings, slide faces, crank pin bearings, and No. XI is a particularly high grade metal for bearings. The claim is made for No. XI that it will wear more than six times as long as ordinary gun metal. Every user of phosphor bronze should write to this company, stating the special uses for which the bronze is desired, so that the circulars filling the writer's requirements can be sent and other information supplied.

Every engineer, ship builder and boiler maker should have a copy of the handsome new catalogue issued by the James Reilly Repair & Supply Company, 229-230 West street, New York City. A free copy will be sent to every reader mentioning this magazine. The catalogue is a fully illustrated cloth bound volume of 550 pages, and in spite of its size, the preface states that it lists only a part of the company's line of supplies. The index occupies 17 pages of fine type, and in it will be found listed almost every tool and appliance needed for boiler and machine shops, ship joining shops, coppersmithing, steam fitting, sheet iron work, brass founding and electric work; also engineering specialties of every kind, such as valves in great variety, stop cocks, injectors, governors, machine bolts, chain blocks, trolleys, drills, wrenches, boring machines, pneumatic tools, ship cleats, lanterns, life rafts and boats, ship fittings, belting and packing, fire hose, flags and bunting, hot blast furnaces, drills, feed water heaters, grease extractors, ash ejectors, anchors, marine plumbing, canvas, gauges, jacks, pumps of all kinds, vises and motor boat accessories. The James Reilly Repair & Supply Company has been in business for thirty-nine years, and has recently erected a six-story warehouse at the above address. The company's machine shops at Jersey City and Philadelphia are equipped with the most modern appliances, and constitute what the company states is the largest and most complete establishment of its kind in the world.

All about Babbitt Metals, being "valuable information for superintendents and master mechanics," is the title of a booklet issued by the New Era Manufacturing Company, Kalamazoo, Mich. The preface states that if the plan outlined in the booklet is followed, it will secure for the consumers of Babbitt metal the full value of their money by giving them the benefit of the best competitive prices of reputable manufacturers, and making it impossible for an inferior metal to be sold them. This booklet will be sent free upon request.

The folding lifeboats and canoes manufactured by the Berthon Boat Company, Ltd., 50 Holborn Viaduct, London, E. C., England, are very completely illustrated and described in a handsomely printed catalogue, a copy of which will be sent free of charge to any of our readers. These boats have been approved as life-saving appliances suitable for use in accordance with the rules made under the Merchant Shipping Act of Great Britain. The manner in which the boats are constructed is very fully shown in the catalogue and there is a great deal of information regarding the many uses to which the different types of boat can be put. Any one at all interested in the use of small boats for tenders or dinghies for fishing and shooting purposes, for canoes, as well as for life-saving purposes, etc., should have a copy of this catalogue.

Franklin air compressors are the subject of a handsomely printed and illustrated catalogue of 116 pages issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. This catalogue, which is No. 20, is devoted exclusively to a detailed description of the Franklin air compressors, manufactured at the company's plant in Franklin, Pa. Constructive principles are described in detail, and information not hitherto published is given regarding several new types of compressors, including the Corliss motor-driven and gas engine driven, and new pattern compressors of larger capacities. Considerable space is devoted to pumping by compressed air, describing the new Chicago water lift, and furnishing practical information and advice to all compressed air users and especially to those contemplating the introduction or enlargement of compressed air equipment. Numerous tables and formulas complete the contents of this valuable contribution to compressed air literature, which should be in the hands of all interested in the subject. The book will be sent free upon application to all who mention this magazine.

Graphite paint, made by the Detroit Graphite Manufacturing Company, Detroit, Mich., is the subject of an illustrated catalogue with a return post card as part of its cover. This catalogue states that for twenty years the Detroit Graphite Manufacturing Company has made a specialty of paints for service under especially severe conditions. The company pays special attention to paint for machinery and engines.

A free copy of a most useful catalogue of shipping and marine wire rope will be sent to the readers of this magazine who write for one, by Messrs. W. N. Brunton & Son, Musselburgh, Scotland. The catalogue is neatly bound in cloth. It is well illustrated, so that the descriptive matter regarding everything in the line of wire rope is made perfectly plain. The specialties of this company include flexible steel wire ropes for ships' hawsers, cables, fishing lines, running gear, trawl warps, cargo falls, etc.; special wire for use on yachts and fittings of all kinds for use in connection with rope and cordage of all kinds.

Probably the most complete catalogue devoted to steamship furnishings and fittings that has ever come to hand is the one issued by Messrs. Brooks & Walker, 25 Minories, Aldgate, London, E., England. The catalogue is about 8 by 12 inches in size and comprises over 150 pages. Almost everything in the list of brass fittings that could be asked for is illustrated and described in these pages, and in most instances prices are given. The specialties include valves, cocks and gauges in great variety, injectors, ships' bells, forges, all kinds of tools in great variety, whistles, marine clocks, deck fittings of many kinds, fire-fighting supplies, lamps for many uses, lubricators of all kinds, pipe fittings in variety. A copy of this catalogue will be sent to any inquirer who mentions INTERNATIONAL MARINE ENGINEERING.

A neat pocket diary for 1907 will be forwarded free of cost by the Crandall Packing Company, 136 Liberty street, New York City, to all readers mentioning this magazine. No advertising matter whatever appears, except the name of the company on the cover in gold letters. This little booklet is leather bound with gold edges to the leaves. There is space on each page for memorandums for four days. In the front part of the booklet is an alphabetical list of cities and towns in the United States, together with their population and rank; also the rank and population of every State and Territory, together with the electoral vote and the number of Congressmen. In the back of the book are rules for computing interest, rules for administering help in case of accidents, antidotes for poisons, tables of weights and measures, surveyors' measures, weather bureau signals, and rates of domestic and foreign postage.

The 1906 catalogue, issued by E. W. Bliss Company, Brooklyn, N. Y., is a handsomely printed and illustrated cloth bound volume of 580 pages, and should be in the hands of every ship builder, boiler maker and user of structural iron. This company makes punching, shearing, forming and forging machinery for ship and bridge builders, boiler makers, structural iron workers, rolling mills, locomotive and car builders, etc. The illustrations must be nearly a thousand in number, and are exceptionally clear and descriptive. A user of power shears, for instance, will find illustrated and fully described Bliss power squaring shears, Bliss gap shears, Stiles power shears, Bliss straight-sided squaring shears of many sizes and patterns, Bliss trimming and squaring shears, Bliss plate shears for rolling mills, slitting shears, rotary slitting shears, circle shears, etc. There are twenty-six different shears illustrated, each one of which is made in numerous sizes. The other machines and devices manufactured by this company are described and illustrated with equal thoughtfulness.

The State of the Art

in Caliper and Divider making is pretty well shown in our Catalogue. We make about every style that experience has shown to be desirable.

Send for FREE Catalogue No. 17-L of Fine Mechanical Tools.

The L. S. Starrett Co.
Athol, Mass., U. S. A.

Engineering Navigation

In charge of J. G. KREER (N. A. and M. E.), Graduate of Royal School Naval Arch., Berlin, Germany.

In charge of W. J. WILSON, Graduate of U. S Naval Academy Annapolis, Md.

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A full and complete course of instruction in Lake and Ocean Navigation and Marine and Stationary Engineering. Also special branches taught those desiring to qualify themselves for better positions in the Marine Service. Students taught by correspondence Students may begin at any time. Diplomas will be issued to all graduates passing satisfactory final examinations. Send for Circular.

CHICAGO NAUTICAL SCHOOL, 11th Year
MASONIC TEMPLE, CHICAGO, ILL.
W. J. WILSON, Principal (Late Lieutenant, U. S. N.)

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TO SHOW THAT

Elaterite Marine Paint is Absolutely Non-Fouling

Proof Against Heat, Water and Acid, and Will Not Blister, Peel or Wash Off

We can prove these statements to responsible parties who will write us for liberal sample shipment for test

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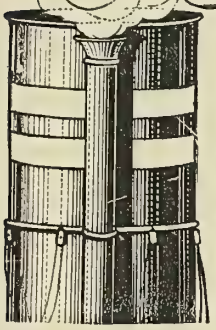
NOW IT'S UP TO YOU

DIXON'S GRAPHITE on the Marine



Dixon's Flake Graphite unlike oil does not injure boilers; in fact, it is an excellent preventive of corrosion. It is used in marine service with complete success for lubricating cylinders, valves, thrust bearings. stern bearings, etc.

12 pages in our tenth edition of "Graphite as a Lubricant" (just printed) treat of marine lubrication.

Get copy 75-C for yourself.

Joseph Dixon Crucible Co.
Jersey City, N. J. U. S. A.

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MY NEW METHOD BRINGS QUICK RESULTS,
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Established in 1842.

Engineers' and Steam Fitters' Tools and Supplies

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VALVES OF ALL KINDS

GENUINE STILLSON WRENCHES

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THERE IS ONE AND ONLY ONE GENUINE STILLSON WRENCH
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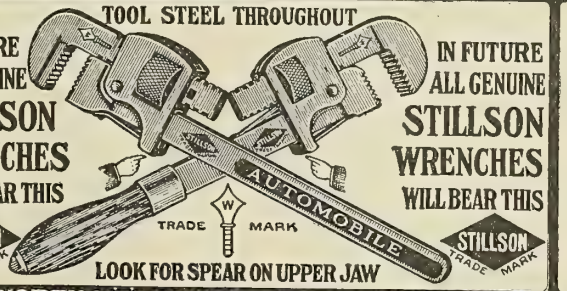

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FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

"The Crosby, a little book with a big purpose," is devoted to a description of the Crosby steam engine indicator, made by the Crosby Steam Gauge & Valve Company, 16 Dey street, New York City.

The last number of The Valve World, published by Crane Company, Chicago, Ill., is handsomely illustrated as usual, and contains the usual number of articles of interest to all users of steam. All our readers who will mention this magazine will be put on the free mailing list of The Valve World.

Imperial Type 10 air compressors, steam and power driven, are the subject of a handsomely illustrated pamphlet published by the Ingersoll-Rand Company, 11 Broadway, New York City. The catalogue gives a detailed description of the more important parts of this compressor, and is profusely illustrated by half tone views and sectional drawings of the machine. Three types of the Imperial Type 10 are covered—the Meyer valve type, the Imperial Corliss, and the Imperial Type 10 belted machine.

The monthly stock list of the Cincinnati Iron Store Company, Cincinnati, Ohio, will be sent free to readers of this magazine. The company cuts beams, channels, angles, tees, plates, sheets, bars and tubes, to any size wanted, and has constantly in stock ready for immediate delivery, boiler tubes and rivets; bar iron and steel; tank steel and structural steel of every kind. It also keeps in stock a great variety of boiler and engine makers' tools and machinery, such as overhead trolleys, punching and shearing machines, hydraulic presses, bending rolls, drills, lathes, etc.

Wireless clusters and lighting specialties are the subject of catalogue B-17, issued by the Benjamin Electric Manufacturing Company, Chicago, Ill. This company makes a specialty of electric clusters for lighting ships, wharves and ship yards. The clusters are of the national code standard, the elements being on one base. There are no wires, the cost of installation is stated to be greatly reduced and the life of the clusters much lengthened.

Machine Tools for working plates, bars and structural material, is the subject of illustrated catalogue C, distributed by the Rock River Machine Company, Janesville, Wis. Punches and shears of many sizes and styles, bending rolls, splitting shears, and many other tools, are fully illustrated and concisely described. The pamphlet contains tables of equivalent of United States weights and measures in the corresponding metric denominations, and the different standards for wire gauge used in the United States.

"The Penberthy Engineer and Fireman," published monthly by the Penberthy Engineering Company, Detroit, Mich., the subscription price of which is twenty-five cents per year, always contains articles of interest to engineers and firemen. A recent issue, for instance, contains among others the following articles: "Some Principles of Heating," "Lessons from Experience in Selecting an Engineer," and "A Chronic Thump and What Caused It."

"Graphite as a Lubricant," published by the Joseph Dixon Crucible Company, Jersey City, N. J., is now in its tenth edition. The subject of lubrication in general and graphite lubrication in particular, is exhaustively treated. All the features of the previous editions are retained, and the latest information, both scientific and practical, that has to do with the subject is added, making the booklet a very useful one to the student of theory and to the man of practice. The publication is indexed so that a reader may readily find the information he is most interested in. A free copy will be sent upon application to readers mentioning this magazine.

Galuvos aluminum galvanizing paint, manufactured by the Metallic Compositions Company, 333 Gray's Inn Road, London, W. C., England, is described in a circular, known as List A-1, which this company is distributing. This circular shows that this paint is especially recommended for use on stanchions, davits and all deck iron work on vessels, and that it acts exceptionally well as a preservative for wrought and cast iron work of all kinds. The paint is sold in the market all mixed ready for use, and it is designed especially for use anywhere that metal substances are to be protected from the weather, sea-water and heat. Copies of this circular can be had from the company for the asking.

Every user of rubber goods should send for a copy of a very handsome catalogue, issued by the Leyland and Birmingham Rubber Company, Ltd., Leyland, near Preston, England. The catalogue has a handsome lithographed cover and the pages are all printed on art paper in two colors. A very complete index gives a list of the many specialties which this company manufactures. The specialties of interest to our readers are various kinds of packing, belting of several kinds, hose for steam, water and all sorts of purposes, etc. Although the catalogue is a very handsome and expensive one to publish, we infer that any of our readers who mention INTERNATIONAL MARINE ENGINEERING can have a copy sent to them free of charge.

"How To Take Out Patents" is the title of a work by Edwards & Company, Chancery Lane Station Chambers, London, W. C., England. This book will be sent post free upon receipt of fifty cents (two shillings). Messrs. Edwards & Company obtain patents in all countries, and register trade-marks and designs.

"Syracuse" standard gauges are the subject of a folder distributed by the Standard Gauge Manufacturing Company, Syracuse, N. Y. This folder contains an alphabetical list of the various manufacturing devices made by this company, and is intended to be placed in the files of purchasing departments for future reference.

"Steam Traps" is a reprint in pamphlet form of a number of articles by W. H. Wakeman, published in *Graphite* and issued by the Joseph Dixon Crucible Company, Jersey City, N. J. The pamphlet contains numerous illustrations of the several varieties of steam traps, and is well worth reading. A free copy will be sent upon request to readers who will mention this magazine.

"Some users of our air compressors" is a pamphlet published by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., giving a list of the users of Franklin air compressors having two or more of these machines. This list occupies 28 pages, so that it may readily be seen that a great many of these compressors are giving satisfaction.

"Vulcabeston" Union Washers, Asbestos Fire Felt, "How to Pack Gas Engine Cylinder Heads," "J.-M." Electric Car Heaters, "Mobilene" Sheet Packing, and "Kearsarge Coil Packing are the subject of a number of leaflets distributed by the H. W. Johns-Manville Company, 100 William street, New York City. All of these folders and many others will be forwarded free upon request, to readers of this magazine.

Makers and users of propellers should send to the Hyde Manganese Bronze Company, Bath, Me., for circulars regarding this concern's manganese bronze, which is a mixture intended especially for use in propellers. This bronze has a tensile strength of from 60,000 to 70,000 pounds per square inch, and elongation from 30 to 45 percent.

Users of patent friction clutches and accessories, patent oil separators, oil filters, water softening plants, four-way hydraulic valves, steel shafting, rope and belt pulleys, self-oiling bearings, etc., should have for reference a copy of a 200-page catalogue neatly bound in cloth which will be sent free to any of our readers upon request, by Messrs. David Bridge & Company, Castleton Iron Works, Castleton, Manchester, England. The catalogue is very fully illustrated and contains much valuable information.

One of the handsomest calendars we have received for 1907 is that of David Kahnweiler's Sons, 2 Dover street, New York, entitled "To the Rescue," in colors. It represents lifesavers dragging their lifeboat over the sand, going to the rescue of a sinking ship. A free copy of this will be sent to any reader of INTERNATIONAL MARINE ENGINEERING upon application to the above concern.

Marine plumbing supplies and specialties are described and illustrated in a very complete catalogue of 82 pages, published by A. B. Sands & Son Company, 242 Water street, New York City. This company manufactures plumbing complete for every kind of vessel from a motor launch to an ocean liner. A free copy of the catalogue will be sent upon request to readers mentioning INTERNATIONAL MARINE ENGINEERING.

"Models" is the title of a catalogue published by the H. E. Boucher Manufacturing Company, 105 Maiden Lane, New York City. This company designs and builds special machinery, develops inventions, and makes patterns and models. In the catalogue are illustrated models of the United States ships *Connecticut, Tennessee, Decatur,* and *Sherman.* These models were built by the Navy Department under the supervision of Mr. H. E. Boucher.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

71 BROADWAY NEW YORK

Free, Our Practical Pamphlets :

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

Star safety water tube boilers are described and illustrated in Bulletin No. 2, issued by A. D. Granger Company, 95 Liberty street, New York City.

"Fast Launches and Motor Boats" are the subject of an illustrated catalogue issued by H. J. Leighton, 901 West Fayette street, Syracuse, N. Y.

Every user of lock nuts, bolts, iron and wire railing, gates, etc., should send for a free copy of the twelve-page illustrated folder, giving revised prices, etc., issued by Messrs. Jones, Bayliss & Jones, Ltd., Wolverhampton, England.

Engineers and others interested in the subject of graphite as a lubricant, should write to the Joseph Dixon Crucible Company, Jersey City, N. J., mentioning this magazine, and ask to be put on the free mailing list of *Graphite,* the monthly publication issued by this company.

"The American Wire Rope News" is a quarterly publication, issued by the American Steel & Wire Company, The Rookery, Chicago, Ill. The aim of the publishers is to interest all users of wire rope, and readers who will mention this magazine will be put on the free mailing list of the pamphlet.

The "Little Jap" hammer drill is the subject of Bulletin No. 2011, issued by the Ingersoll-Rand Company, 11 Broadway, New York City. The bulletin states that the hammer drill is as indispensable for the lighter work of all rock excavation as is the heavier piston drill for the heavier surface.

JEFFERYS' PATENT MARINE YACHT GLUE
Best for Yacht Decks
Write for Prices, Circulars, Samples, etc. **L. W. FERDINAND & CO., 201 South Street, BOSTON**

UNITED STATES METALLIC PACKINGS
FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES
RELIABLE—SATISFACTORY—EFFICIENT
The United States Metallic Packing Co.
427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg

BUSINESS NOTES.

MILAN HONORS FOR AN AMERICAN EXHIBITOR.—The International jury of the Milan Exposition has announced the award of a Diploma d'Onore to the "Long Arm" system of electrically operated bulkhead doors. The award takes higher rank than the gold medal in some cases. The "Long Arm" System Company, Cleveland, Ohio, had an elaborate installation of its watertight doors at the Exposition, and so much attention was attracted by the exhibit as to give rise to a demand upon the government to make the installation of electrically operated bulkhead doors on large passenger ships obligatory. Some time ago the "Long Arm" system passed the severe tests put upon it by the United States Navy Department, and the electrical doors and hatches of this system are now in use upon most of the new American warships. From a central emergency station above deck, all the principal bulkhead doors can be closed in a few minutes. The great advantage gained is that the electrical control makes closure of the doors possible under all circumstances, even in the event of a hull puncture below the water line, or when the conditions would make it impracticable to close bulkhead doors by hand against inrushing water.

THE ELECTRIC LAUNCH COMPANY, Bayonne, N. J., has received an order from the Quartermaster General, U. S. Navy, for four 60 ft. steam launches. These boats are 60 ft. over all, 10 ft. beam, with a draft of 4 feet. The hull construction is very substantial, oak timber being used throughout. Selected yellow pine is used for the planking, all the fastenings being of copper and bronze. The cabin is built of mahogany, inclosed with glass drop windows; the interior finish of the cabin being of cherry and ash. The officers' quarters are forward; the men's quarters aft, the engine room being amidships. The power equipment consists of a water-tube boiler, compound marine steam engine with inboard condensers, air and circulating pumps, etc. The speed will be 12½ miles per hour. The Electric Launch Company has a large number of orders for electric launches to be delivered this winter in the South. This company also makes a specialty of laying up for the winter motor boats of all kinds, and has in its yards some of the best known motor boats in the country. The company's property is thoroughly protected against fire by an elaborate sprinkler system, and it is stated that this is the only wooden boat building factory in the country that is so equipped.

THE FILES AND RASPS made by the Nicholson File Company, Providence, R. I., are stated to be the world's standard. Every user of these instruments should send for a copy of "File Filosophy" which will be sent free to readers mentioning this magazine.

THE STEAM GLUE HEATER, made by the E. M. Dart Manufacturing Company, Providence, R. I., is said to cook and heat glue rapidly by combining all the essential features in one arrangement. A perforated seamless brass tube extends the entire interior length of the beam box, and allows water that is condensed in the connecting steam pipe to flow into the steam box when the steam valve is opened. From this source comes a supply of water that always remains fully half the depth of the steam box, the surplus running off through an opening provided in the right hand end. The draw cock in front is a convenient arrangement for obtaining hot water, which is an important aid in accomplishing the object sought. The range of service concentrated within this hot box can be regulated to furnish any quantity of cooked glue from thirty gallons to a teaspoonful in ten hours. The raised edge around the box prevents water flowing over that might accumulate by excessive boiling, and the pipe within the box connecting with the top provides an opening for the water to return.

MACHINERY FOR EXTRACTING GREASE, oils, and other liquids from wiping wastes, sponges, cloths, towels, leather and other substances is made by the Oil & Waste Saving Machine Company, Real Estate Trust Building, Philadelphia, Pa. This company's machine is a turbine engine having a direct connected basket or waste receptacle, in which the oily waste is placed. It is operated by steam, the engine exhausting through the center of the basket, causing the steam to pass through the waste and the perforated walls of the basket, thereby separating the oil and grease from the waste by centrifugal force, and by the introduction of steam which liquifies the oil and grease. These materials, after the machine has been in operation about thirty minutes, are forced out of the waste and basket and flow through the pipe of the oil outlet. The oil may now be filtered and used over again. The waste is then taken from the basket. The steam is dried out and the waste is as good as new. The company publishes a list of several hundred users of its machines, and catalogues and full information will be sent upon request to readers mentioning this magazine.

ANTONIO C. PESSANO
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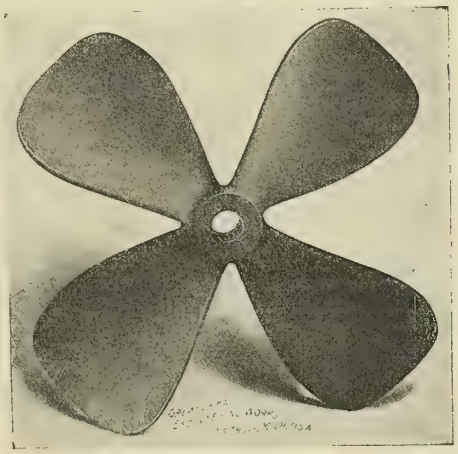
JOHN R. RUSSEL
SECRETARY & TREASURER

GREAT LAKES ENGINEERING WORKS

DETROIT-MICHIGAN



MANUFACTURERS OF

HIGH GRADE SEMI-STEEL

Propeller Wheels

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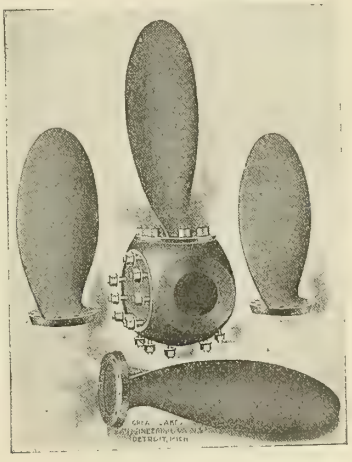


DESIGNERS AND BUILDERS OF

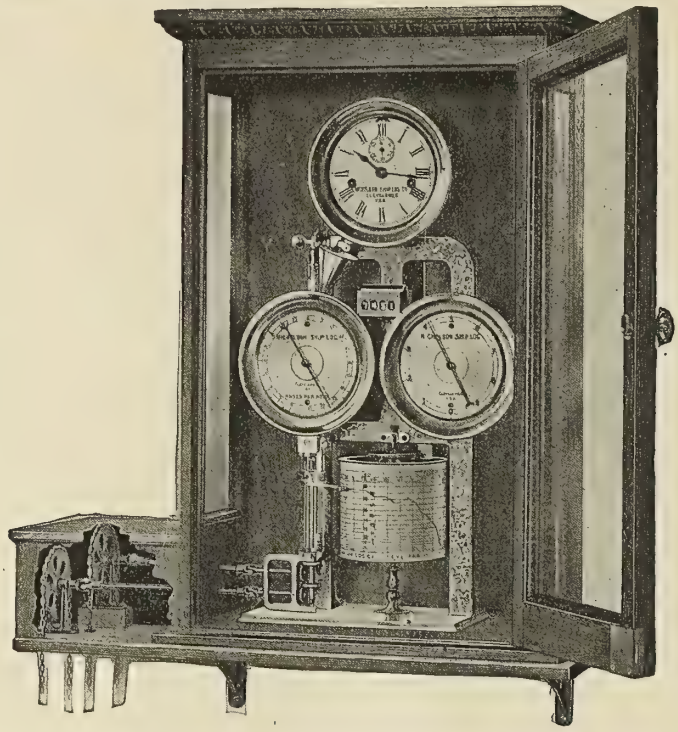
STEEL FREIGHT AND PASSENGER SHIPS

STEEL CAR FERRIES
HYDRAULIC DREDGES
HIGH DUTY AIR COMPRESSORS
MARINE ENGINES

ICE MAKING AND REFRIGERATING MACHINERY

FINAL DECISION IN IMPORTANT FIRE HOSE SUIT.—We learn that on November 19 the Court of Errors and Appeals, Trenton, N. J., unanimously sustained the decision of infringement of corporate name and trade-marks and permanent injunction issued by Chancellor Emery last February, in a suit brought by the Eureka Fire Hose Company, of New York, against the Eureka Rubber Manufacturing Company, of New Jersey. This is the highest court of resort to which the matter can be taken, and the decision, which is an important one, is final. This case has attracted considerable attention among fire department and fire supplies dealers, and it is now settled that the use of the word "Eureka," as part of a business title in connection with the manufacturing and trading of rubber lined cotton fire hose and other similar manufactures of the Eureka Fire Hose Company, is illegal.

LUBRICATION.—"There is probably no factor that has more direct bearing on the cost of manufacturing than the lubrication of machinery, and yet it is doubtful if there is another item connected with the operation of the average plant less understood by owners, their managers and superintendents in charge.. The mechanical installation is of the highest known efficiency, everything is done in the equipment of a plant to secure economy in its operation. After this is done, frequently a long step is taken in the opposite direction by the use of a lubricant unsuited to the existing conditions. The office of a lubricant is not merely to secure quiet running of engines and machinery with temperatures of bearings not alarmingly high, but primarily to reduce friction and wear to a minimum, and a lubricant that will do this is the best to use, no matter what the price may be. Few realize the great loss in power due to the friction of wearing parts. It may be fairly estimated that one-half the power expended in the average case is wasted on lost work, being consumed in overcoming the friction of lubricated surfaces, and a reduction of fifty percent in the work lost by friction has often been secured by a change of lubricants. Among the expenses chargeable to waste power, due to inferior lubrication may be included: (1) The cost of power produced in excess of that really required; (2) wear and tear of machinery, which is constantly doing more work than should be required of it. It is difficult to do more than point out the danger due to the use of inferior lubricants, there being so many substitutes placed on the market with a schedule of laboratory tests which are useless and misleading to anyone other than a manufacturer of lubricants, who makes use of them merely as a means of insuring uniformity in his manufactured products and not as a measure whereby to judge their practical value. As a general guide in purchasing a lubricant, it may be said that a grease which is uniform in quality, every part of which is a lubricant and will not gum or leave a sediment is of the greatest value. From many careful experiments and tests made it is certain that a grease such as "Albany Grease," made by Adam Cooks' Sons, 313 West street, New York, contains all the elements for perfect lubrication and is the best and most economical for any bearing, for the reason that it is a purely animal grease, free from all destructive acids, will lubricate and preserve the bearings of machinery better than any of the so-called mineral greases on the market to-day, as it has done for nearly forty years. Having comparatively low melting points for the different consistencies, it will more readily melt, and thus lubricate, cool and preserve a bearing which from carelessness, inattention or the improper placing or setting of cups would otherwise burn or cut out and be practically destroyed by the use of mineral grease with high melting points. Take, for instance, a mineral grease with a melting point of 300 degrees (and most of those on the market range in that neighborhood, with some running as high as 600 degrees) and place it in open box bearing caps, the usual result is that the bearing will get hot almost to the melting point of the grease before it will flow over the bearing and lubricate it. This is getting pretty close to the danger point for babbitted bearings, and if the heating be long continued, will destroy them. Besides, if the bearing should be neglected for a short time and not supplied with grease, a burned out bearing or a fire will be the inevitable result. Under the same circumstances, No. XXX "Albany Grease," which is of the hardest consistency made, with the highest melting point 175 degrees, would melt and flow over the bearing, lubricating and cooling it, on account of its peculiar properties, long before the heat of the bearing had reached the danger point. Mineral greases, furthermore, are injurious to metals forming the bearing and leave upon the bearing deposits of such substances as gum, lime, etc., which extra thickness and resistance causes wear and tear of the metals and means more retardation and consequently more driving power. There is a record of many instances where as a result of using lubricants of such limited endurance, accidents of a serious nature have occurred, necessarily causing shut down just at the time when the operation of a plant to its fullest capacity was imperative."



THE NICHOLSON SHIP LOG

NOT a luxury but a necessity on every ship. Be up-to-date and equip your vessels with this excellent device. The exact speed of the moment constantly before you and recorded on a chart. Also the distance run shown on a counter. Let us send you our catalogue.

NICHOLSON SHIP LOG CO., Cleveland, Ohio

A NEW THROTTLE VALVE
Powell's "Titan" and "Giant"

For Launches
Steam Carriages
Autos, Road Engines
etc., etc.

NO FRICTION

Disks come to a rest before wedging pressure is applied.

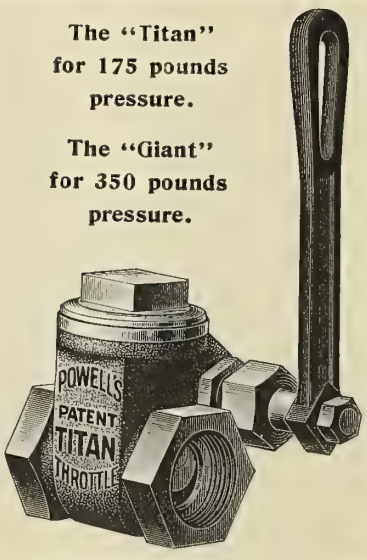
The improved construction enables the valves to be opened or closed with ease under the highest pressure.

SIMPLE—DURABLE

ALL PARTS
MADE TO GAUGE

The "Titan"
for 175 pounds
pressure.

The "Giant"
for 350 pounds
pressure.



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Everything in the steam line for the boiler and engine room
Fully Illustrated in our Catalogue.
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OF

International Marine Engineering

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January=December, 1906

IS NOW READY FOR DELIVERY

PRICE $4.00

Buyer Pays Express Charges

NEW YORK	LONDON
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WATER-PROOF CANVAS COVERS imported from Antwerp, Belgium, are sold by John Curtin, Incorporated, 2 South street, New York City, sail maker. These covers, it is claimed, will hold water until it all evaporates.

THE ROSS FLUID LEVEL INDICATOR and filler cap for launch and automobile tanks is manufactured by the Turner Brass Works, 74 Franklin street, Chicago, Ill. This indicator is designed to be fitted to fuel, water, or other liquid tanks on motor boats, automobiles, or places where sealed tanks containing liquid free or under pressure is used, and it is desired to know accurately at any time their contents. It obviates inserting dirty sticks or rules into the liquid to determine its level, and prevents clogged pipes and explosion resulting therefrom. It is of rigid and simple construction, being a combined indicator and filler cap, and as it is always removed when filling the tank, the condition of the working parts is exposed. It is fitted with a heavy unbreakable magnifying glass over the dial, which enlarges the figures and pointer and makes it easy to ascertain the level of the liquid. There are no magnets, compass needles, gears, packing, levers or other delicate parts, only a moving float which revolves a pointer over a dial with all parts hermetically sealed. The Turner Brass Works also makes the Turner marine carburetor in four sizes, and the Martin locking and reversing device. Catalogues and full information will be forwarded upon request.

INDENTS FOR MACHINES, TOOLS, metal goods, steamship, tramway, electrical and other supplies are executed on small commission against remittance by Messrs. Bromhead & Company, 33 Cannon street, London, England, licensed and registered patent agents and arbitrators for metals and machinery to the London Chamber of Arbitration.

THE MARINE BOILER made by D. Ahern, 263 South street, New York City, is stated by the manufacturer to deliver more horsepower per grate area than any other boiler invented. "It is durable because it is a steel boiler throughout, without a single rivet coming in contact with the fire." The manufacturer claims that accumulation of sediment over the fire is impossible and that it has the greatest amount of heating surface possible on given floor area, and that a test showed fifteen pounds of water evaporated to one pound of coal consumed.

THE NATIONAL MOTOR BOAT SHOW will be held at Madison Square Garden, New York City, February 19-26th, inclusive. For the first time this show will be strictly an exhibition of motors, boats and accessories of all kinds. It is stated by the managers that everything that pertains to the fitting out of a boat will be on exhibition, and any one in any way interested in boating should not fail to visit the show and note the many improvements in motors, hulls and accessories. Among the many things that will be on exhibition will be motor boats, launches, yacht tenders, dories, motors, marine hardware, batteries, lamps, etc. The various motors, whether they use gasoline, naphtha, kerosene or electricity, will be found in operation.

THE MARINE GLUE, manufactured by L. W. Ferdinand & Company, 201 South street, Boston, Mass., is stated by the makers to be absolutely water-proof elastic material for paying the seams of decks. The manufacturer states that all of the cup defenders since 1885 have had their decks paid with this glue, and all of the ships of the United States navy since that date. It is used exclusively by several large ship and yacht builders, and has been adopted by the British, French, German, Japanese, Russian and other navies, as well as by a great many steamship lines and ship builders all over the world. A special form of glue is made for application to the air tight compartments of life boats, etc., and in combination with canvas for decks and for canvas boats and canoes.

SUBMARINE SIGNALS.—All persons interested in the subject of submarine signals should not fail to write to the Submarine Signal Company, Boston, Mass., for information regarding this company's signal device, which has been installed on a large number of light vessels in the United States, Canada, England, Germany and France. Besides this, great numbers of the merchant marine have been equipped with this company's device, among them being ships belonging to the Cunard, Hamburg-American, North German Lloyd, French line, White Star and many other well-known steamship lines. The Submarine Signal Company has also equipped many vessels in the United States navy and Revenue Cutter Service.

A SOLUBLE METAL BOILER COMPOUND is placed on the market by the New Era Manufacturing Company, Kalamazoo, Mich. The company states that its alloy possesses the peculiar property of being soluble in hot water. When placed in a steam boiler, it gradually dissolves, keeping the water in a saturated state, thus preventing the formation of new scale and dissolving the old. About one and one-half ounces of this compound is required in a hundred horsepower boiler for each ten hours' running, on an average, but as the compound is affected differently by different waters, it is impossible to state definitely the amount that will be required in each case. Engineers should begin on the above basis, and then vary the amount to meet their especial requirements.

AJAX MANGANESE BRONZE

The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality, It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

THE AJAX METAL COMPANY,

PHILADELPHIA, PA. -:- BIRMINGHAM, ALA.

THE AMERICAN BLOWER COMPANY, Detroit, Mich., has received an order from the Toledo Shipbuilding Company, Toledo, Ohio, for six more double self-oiling engines.

THE ANNUAL MEETING and election of officers of The Roberts Safety Water Tube Boiler Company, was held at Red Bank, N. J., on November 1st, and the following officers were re-elected: Edward E. Roberts, president; E. Gerry Roberts, vice-president; William S. Blitz, secretary; and John M. Hoffmire, Jr., treasurer. The Directors declared the usual standard dividends, and the original stockholders have now received over 150 percent on the cost of their stock.

"THERE IS MORE THAN COMMON ART in the shape,, depth and number of teeth on a chain wrench jaw. Too many teeth mean small teeth. Small teeth mean teeth quickly dulled, quickly filled up and quick to lose the line of form which insures a dependable bite. You may file a fine tooth once, but can file a "Vulcan" through several generations of usefulness. These "Vulcans" are sold all over the world, and are made by J. H. Williams & Company, manufacturers of drop forgings, Brooklyn, N. Y.

THE BABBITT METAL made by the New Era Manufacturing Company, Kalamazoo, Mich., manufacturer and dealer in metals and special alloys, is stated to possess the qualities of resistance to crushing strains, elastic tension, tensile strength, resistance to heat, and anti-friction quality. All grades are carried in stock, and specifications are furnished with quotations. Those interested should write for "All About Babbitt Metals," a copy of which will be sent to readers mentioning this magazine.

CARBON DIOXIDE REFRIGERATING MACHINERY for steamships of all kinds, also crank, tunnel and propeller shafts, pistons and connecting rods, rough, turned or finished, are made by Burmeister & Wain, Ltd., shipbuilders and engineers, 12 Coleman street, London, E. C., England. Our readers who will mention this magazine will receive circulars and descriptive matter free of charge.

PRICES IN THE ELECTRICAL TRADE continue to show an upward tendency in sympathy with the advance which has taken place in the prices of all raw materials. Orders for future delivery can only be placed in many instances at a considerable advance over present market quotations. The General Electric Company, Schenectady, N. Y., in common with many other large manufacturing concerns, is announcing a general advance in prices of electrical apparatus and supplies. This will not unlikely be followed by further advances if present market conditions continue.

THE GEORGE R. RICH MANUFACTURING COMPANY, Buchanan, Mich., is distributing literature in which is illustrated a Rich chuck and drill in use while drilling armor plate on the United States battleship *West Virginia*. The company states that ship builders throughout the country have found that the Rich flat drill will drill two or three times as many holes in armor plate and nickel steel as any other drill, and that all of the rail mills in the United States are equipped with this tool, reports showing that the cost of drilling has been reduced in some cases fifty percent.

HELP AND SITUATION ADVERTISEMENTS.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word. No advertisement will be inserted for less than 75 cents (3 shillings) for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Navy engineer officer; Graduate of Naval Academy; young, experienced; desires civil position, has had eleven years' experience with man-or-war machinery. Address *Position,* care of INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York City.

Experienced Italian Naval Engineer, living in Genoa, would take the agency for Italy of American ship yard and refrigerating machinery, ship fittings, steering apparatus, mechanical telegraph, capstans, anchors, and other auxiliary machinery. Best references. Address *Representative,* care INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York City.

A practical boat builder, who has designed and built sail and power yachts, and has knowledge of gas engine design, desires situation in the drafting line. Address *Wm. H. Covington,* 36 Union street, Plymouth, Mass.

Engine and boiler designer seeks position.—When you pay a large salary you want large returns. Why not employ a technical man who will measure up to a large salary. Such a man wants a chance to show his metal. *"Mechanical Engineer,"* care of INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York.

First Class General Draughtsman for steel hull and engine work desires to change position. Address *Hull Draughtsman,* care INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York.

Draftsman wants position; fully experienced in marine engineering and general work. Address *Baddett,* 529 West 111th street, New York City.

JAMES J. GILROY, South Brooklyn, N. Y., has the contract to remove the two old boilers and install two new Roberts safety water-tube boilers in their place, in Commodore Benedict's steam yacht *Oneida.*

THE MCNAB & HARLIN MANUFACTURING COMPANY, 56 John street, New York City, has appointed Mr. W. Blackburn Smith, Hamilton, Bermuda, its sole agent in Bermuda for the sale of its valves, cocks, fittings, and other steam specialties, with offices at Hamilton.

J. & E. HALL Ltd.

(ESTABLISHED 1785)

23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,

MAKERS OF

REFRIGERATING MACHINERY

ON THE

CARBONIC ANHYDRIDE (CO_2) SYSTEM.

Originally introduced by them into England.

MACHINES OCCUPYING MINIMUM SPACE FOR BOTH LAND AND MARINE INSTALLATIONS.

FULL PARTICULARS ON APPLICATION.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

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AMERICAN.

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12 West 31st Street, New York.

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" 7, William T. McElwee, Box 572, Fire Boat, Portland, Maine.
" 9, William Bridges, 784½ Twelfth St., Milwaukee, Wis.
" 12, Clarence C. King, 618 N. Ninth St., La Crosse, Wis.
" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
" 14, Joseph F. Dumas, Box 598 Mobile, Ala.
" 15, R. E. Lee Skinner, 622 Louisa St., New Orleans, La.
" 17, George S. Collins, 2277 Vine St., Cincinnati, O.
" 18, William Hurst, 715 Walnut St., Cairo, Ill.
" 20, Joe B. Barry, 640 Keel St., Memphis, Tenn.
" 21, J. C. Garrety, 209 Bridge St., Vicksburg, Miss.
" 23, William R. Lewis, 213 Front St., Jeffersonville, Ind.
" 24, Joseph B. Flach, 327 N. Fourth St., Paducah, Ky.
" 26, T. H. Kirkbride, 228 Bond St., Evansville, Ind.
" 27, L. C. Schwall, 518 S. Madison Ave., Bay City, Mich.
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" 38, C. H. Wolford, 73 Starr Boyd Building, Seattle, Wash.
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" 40, Charles Drouet, 1003 Avenue I, Galveston, Tex.
" 41, Frank Forbes, 133½ First St., Portland, Ore.
" 42, James Manning, 802 E. Duval St., Jacksonville, Fla.
" 43, Archie R. Wright, 1209 Suffern St., Port Huron, Mich.
" 44, George Layman, 707 Cypress St., Manistee, Mich.
" 45, W. L. Salter, Care Ocean S. S. Co., Savannah, Ga.
" 46, D. W. Farrell, Clayton, N. Y.
" 47, Jared R. Cook, 320 Court St., Sault Ste. Marie, Mich.
" 48, Alfred Hegemer, 322 Sindsley St., Sandusky, O.
" 51, Eli V. Barry, 244 Terrace St., Muskegon, Mich.
" 53, Harry Stone, Box 445, Marine City, Mich.
" 55, Archie Stalker, Box 883, Cheboygan, Mich.
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" 58, E. Caspers Haselden, Box 31, Georgetown, S. C.
" 59, George F. Keating, 74 Webster St., East Boston, Mass.
" 62, Nathan S. Lawrence, 266 Connecticut Ave., New London, Conn.
" 63, Geo. T. Cahill, 303 N. Pearl St., Albany, N. Y.
" 65, George W. Conner, Care of Consumers Coal Co., Charleston, S. C.
" 67, James K. Dole, Sagatuck, Mich.
" 70, Frank H. Goodell, 138 Eighth St., Astoria, Ore.
" 71, E. D. Warren, 518 Nun St., Wilmington, N. C.
" 72, William T. Findlay, 130 W. Bridge St., Oswego, N. Y.
" 73, Joseph Prevot, 1146 Pine St., Green Bay, Wis.
" 75, N. J. Leonard, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
" 77, Edw. Dusold, 602 Jay St., Manitowoc, Wis.
" 78, J. P. Burg, 2722 Minnesota Ave., Duluth, Minn.
" 81, James L. Sweeney, 206 E. Sarragosa St., Pensacola, Fla.
" 82, Fred H. Gowell, 427 Middle St., Bath Maine.
" 85, Jno. A. Packard, 417 Tawas St., Alpena, Mich.
" 86, David D. Clow, 1324 Carney Ave., Marinette, Wis.
" 87, Harry Firby, 430 Helen Ave., Detroit, Mich.
" 88, Charles O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, Edward R. Lord, 102 Ogden St., Ogdensburg, N. Y.
" 91, R. B. Huston, 18½ Williams St., Har. Sta., Ashtabula, Ohio.
" 92, Joseph D. Budd, Box 50, Station I, W. S., Saginaw, W. S., Mich.
" 93, M. E. Davis, 920 E Street, N. W., Washington, D. C.
" 94, John P. Harris, P. O. Box 40, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, S. T. Powers, 723 Eleanore St., New Orleans, La.
" 100, H. G. Wootten, 1717 Makiki St., Honolulu, H. I.
" 101, Thomas G. Williams, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, 16 Pollock St., Box 225, New Bern, N. C.

MR. J. W. DUNTLEY, president of the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., sailed for Europe November 6, on a five weeks' business trip, during which he visited the important trade centers in England, Scotland, France and Germany.

ROBERT JACOB, City Island, New York, has in course of construction a new high speed steam yacht, which was designed by Swasey, Raymond & Page, Boston, Mass. Steam will be furnished for the Sullivan engine by one No. 15 Roberts safety water tube boiler, made by the Roberts Safety Water Tube Boiler Co., 39 Cortlandt street, New York.

A BLUE PRINT MACHINE for printing by electric light, is made by the Keuffel & Esser Company, 127 Fulton street, New York City. This is a continuous printing machine which is claimed to be economical, rapid and convenient. The tension is automatic, and the speed is variable and always under control. It is made to print up to 54 inches wide. Descriptive circulars will be sent upon request.

CONSIDERABLE TROUBLE AND EXPENSE is caused in cold weather by the freezing of water pipes. The H. W. Johns-Manville Company, 100 William street, New York City, has a covering sold under the name of "Zero" which is stated to entirely prevent the freezing of pipes. It consists of a compound of hair felt and wool felt, possessing the highest insulating qualities.

THE STEAM YACHT *Czarina,* built two years ago, by the Crescent Ship Yard, is having new Roberts safety water-tube boilers built, to take the place of water-tube boilers of another type. The change is being made under the supervision of McIntosh's Yacht Agency. The boilers are now well under way at the works of the Roberts Safety Water Tube Boiler Co., Red Bank, N. J.

THE CHICAGO PNEUMATIC TOOL COMPANY, Fisher Building, Chicago, Ill., reports that business for the first twenty-five days of October showed an increase of forty-seven percent over the corresponding period of 1905, and that the amount of business done for the first nine months of the current year shows an increase of twenty-seven percent over 1905. This company reports that at the close of the year 1905 it had on its books more than eight thousand actual customers, and that the number so far this year has been increased by more than fifteen hundred.

A LARGE ORDER FOR GAS PRODUCERS.—The Illinois Steel Company has recently ordered one hundred and forty producers with gas flumes and Dyblie reversing valves, to operate the twenty-eight open-hearth furnaces to be erected at Gary, Ind., constituting the largest steel plant in the world. These gas producers will be erected by the Morgan Construction Company, Worcester,, Mass., and this is the fifth order which the Illinois Steel Company has awarded the Morgan Construction Company for gas producers.

THE ELECTRIC DRILLING MACHINES, manufactured by the Light Electric Motor Company, Ltd., Ilford, Essex, England, can be supplied for any voltage up to 250, either direct or alternating current. They are guaranteed against structural defects for twelve months. The half-inch machine with screw feed is 11½ inches long and weighs 15 pounds. The 1¼-inch machine with automatic feed and side boring attachment is 18½ inches long and weighs 36 pounds. The same machine with automatic feed, but without side boring attachment, weighs 33 pounds. Circulars and full particulars will be sent to readers mentioning this magazine.

THE PORTLIGHTS made by the Delaware Marine Supply Manufacturing Company, Wilmington, Del., manufacturers of ship fittings and marine hardware in brass and bronze, have been installed on a great many of the largest steamships in this and foreign countries. Forty thousand pounds of this company's lights were installed in the Pacific Mail Steamships *Manchuria* and *Mongolia,* and ferry boats, tugs, yachts, government vessels, and launches without number, are equipped with them.

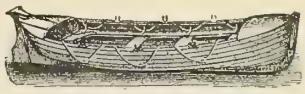
Neversink Cork Jackets and Life Belt

Each Preserver stamped by United States Inspector, guaranteeing proper buoyancy

Safest Solid Cork Life Preservers Ring Buoys and Fenders *Cheapest*

Approved and adopted by U. S. Board of Supervising Inspectors. Also adopted by the principal Ocean, Lake and River Steamer Lines as the only Reliable Life Preserver.

Metallic and Wooden Life Boats



Metallic Life Rafts. Lyle Guns. Marine Drags

DAVID KAHNWEILER'S SONS
Franklin Square and Dover Street
Telephone, 5076 John NEW YORK CITY

The Reason your dealer tries to sell you a "JUST AS GOOD" as

RAINBOW PACKING

is because his profits are 50 per cent. greater on the imitation kind.

THE ENGINEER'S FRIEND

¶ State clearly on your packing orders RAINBOW and be sure you get the genuine. Look for the trade-mark, three rows of diamonds in black, in each one of which occurs the word RAINBOW.

¶ RAINBOW PACKING is the most satisfactory packing ever made. Can't blow RAINBOW out. Makes a perfectly tight joint for air, steam, hot or cold water, gas, oil or ammonia.

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Peerless Rubber Manufacturing Company

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1218 Farnam St., Omaha, Neb.
202-210 S. Water St., Chicago, Ill.
Cor. Common and Tchoupitoulas Sts., New Orleans, La.
1621-1639 17th St., Denver, Colo.
220 South Fifth St., Philadelphia, Pa.
17-23 Beale St. and 18-24 Main St., San Francisco, Cal.
Cor. Ninth and Cary Sts., Richmond, Va.
16 & 18 S Capital Ave., Indianapolis, Ind.
1221-1223 Union Ave., Kansas City, Mo.
709-711 Austin Ave., Waco, Tex.
51-55 N. College St., Charlotte, N. C.
634 Smithfield St., Pittsburg, Pa.

TRADE PUBLICATIONS.

The Avery Scale Company, Milwaukee, Wis., has issued a catalogue describing and illustrating its automatic weighing machines, which the company states have received sixty exhibition awards and sixteen gold medals.

Catalogue No. 17, which will be sent free to readers mentioning this magazine, has just been issued by the Marine Iron Works, Station A, Chicago, Ill., designers and builders of marine engines, boilers, and machinery. The catalogue states that the company makes a specialty of designing and building marine machinery for either deep or shallow water boats, condensing or non-condensing. The engines are either single or double cylinder, compound or triple expansion, steam or gasoline. Although the company prefers to build the entire outfit, it will, when requested, submit estimates on the engine work and auxiliaries separately.

The December issue of the "Progress Reporter," issued by the Niles-Bement-Pond Company, 111 Broadway, New York City, is devoted to a very fully and handsomely illustrated description of the machine shops of the Midvale Steel Company, Nicetown, Philadelphia, Pa. These shops are among the finest in the world and the numerous 9 by 6 half tone cuts give an excellent idea of the scope of the works. The "Progress Reporter" is published by the Niles-Bement-Pond Company with the idea of furnishing prompt information regarding new machine tools which are constantly being placed on the market. Readers mentioning this magazine will be put upon the free mailing list upon application.

Every user of anti-friction metals and tin alloys should send to the Tandem Smelting Syndicate, Limited, 97 Queen Victoria street, London, E. C., England, for a copy of the new catalogue which this company has issued. It is neatly printed in two colors and gives a great deal of information regarding the several anti-friction and other metals which this company manufactures. Reproductions are made of medals of highest award given to this company at Bremen in 1890, Chicago 1893, Antwerp 1894, and Paris 1900. In addition to a description of the several kinds of anti-friction metal, the catalogue publishes valuable tables of tests of various kinds, together with much other practical information.

"Thor" pneumatic tools, made by the Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill., are illustrated in folders this company is distributing. Among the pneumatic tools described, are a one piece riveting hammer, a reversible wood boring machine, a piston air drill, a reversible flue rolling reaming and tapping machine, a chipping and caulking hammer, a long stroke riveting hammer, a portable grinding machine, and an air drill.

Small boats, made of "Apollo" galvanized steel, are the subject of literature distributed by the Michigan Steel Boat Company, Detroit, Mich. These folders state that all the company's boats are made of this galvanized steel, each strip being cut from a special pattern and made to conform without strain to the curves of the boats. The lapping, seaming or grooving of the steel strips is by a new process invented by the Michigan Steel Boat Company. These seams, running from stem to stern, are said to give the boat great strength and to render any leakage absolutely impossible. The boats cannot, of course, rot, and the heavy galvanizing protects them from rust. In addition, it is so staunch that a blow from an axe will hardly dent it, so that the company's claim that its boats are extremely durable, appears to be well founded.

An Encyclopedia of High-Pressure Piping Equipment, being a 400-page volume of tables, drawings and information about valves, fittings and steam specialties, will be forwarded free to readers who will mention INTERNATIONAL MARINE ENGINEERING, by the Crane Company, Chicago, Ill. Particular attention has been paid in this volume to illustrations showing the use and application of goods. The tables contain every dimension for each size of valve and fitting needed in designing or erecting a power plant. In connection with each article illustrated is given maximum working pressure for which it is suitable, the test pressure to which it is subjected, and in many cases tables are added showing the result of comparative destructive tests, with the sizes of each class of valve. The illustrations and data regarding flanged fittings and pipe bends include practically every form and kind an engineer may be called upon to furnish. Many of these fittings, which have to be especially made by some manufacturers, are regularly carried in stock by Crane Company.

C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road, Bermondsey, London, S.E.

Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries.

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

Cables.—"HEINDIG, LONDON."
Codes.—A.B.C. 4th & 5th Editions.
Telephone—1998 HOP.

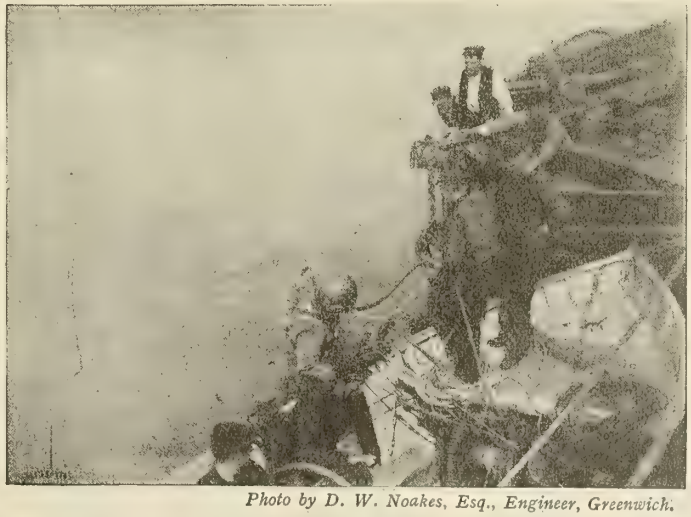


Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

A catalogue of steam, ammonia, and hydraulic packings, is published by the Crandall Packing Company, Palmyra, N. Y. This is a handsomely printed and illustrated booklet of 80 pages, and should be in the hands of every user of packing of any kind. A free copy will be sent upon application to readers of INTERNATIONAL MARINE ENGINEERING.

An illustrated catalogue of shipping tackle will be sent free to readers mentioning this magazine by the Bradley Ship Tackle Company, Bradley Heath, England. The sizes, dimensions and illustrations contained in the catalogue are given as an approximate guide for buyers, and further particulars will be sent upon application.

The Ingersoll-Rand Drill Company, 11 Broadway, New York City, is distributing catalogue 45A, which states that more than 80,000 Ingersoll-Rand rock drills have been built and sold—"probably more than ninety-five percent of all the drills in this country." This catalogue sketches the several standard types with their accessories. For more complete description, those interested should send for catalogues 45B and 46.

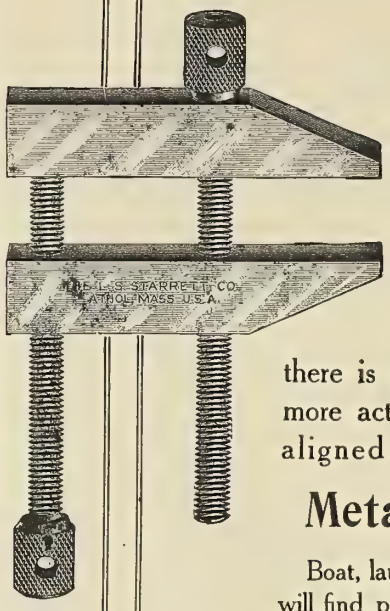
Electric hoists and cranes are described and illustrated in a handsome folder, issued by the Sprague Electric Company, 527 West 34th street, New York City. This folder shows a few of the many combinations of hoists, carriages and cranes built by the Sprague Electric Company, and is intended merely to attract attention to this line of the company's products. Those interested should write for complete hoist catalogue No. 220.

Users of asbestos packings, sheetings, jointings, etc., should send to the United Asbestos Company, Limited, Dock House, Billiter street, London, E. C., England, for a copy of the catalogue which this company will send free upon request. The catalogue contains thirty-six pages and cover, neatly bound, and illustrates many asbestos specialties which will appeal to all of our readers who have to do with steam plants. Every reader interested should be sure to send for a copy.

Mosses & Mitchell, 68-71 Chiswell street, London, E. C., England, are sending out to all inquirers free of charge a catalogue and price list of "The Original" vulcanized fiber. This fiber is used for a surprisingly large number of purposes, many of which will interest our readers, and includes patent valves for air and circulating pumps, condenser ferrules, journal bearings and bushings, washers for thrust and other bearings, safety screw nuts, etc. The many excellent qualities of this fiber are fully described and will be of much interest to all of those who send for copies of the catalogue.

Pneumatic tools and appliances are illustrated in a handsome 42-page catalogue, issued by the Globe Manufacturing Company, Limited, 150 Queen Victoria street, London, E. C., England, a free copy of which will be forwarded to readers mentioning this magazine. The company invites the attention of shipbuilders, engineers, contractors and others to the Tierney pneumatic tools, for which it claims the following advantages in comparison with other pneumatic tools: "Their working capacity, with a less consumption of air is greater; they are more powerful, and do their work more effectively. In the hammers, vibration is much reduced, and on account of their greater simplicity, these tools have a much longer life than those of any other design."

The British Uralite Company, Limited, 50 Cannon street, London, E. C., England, is distributing a valuable catalogue regarding this company's product "Uralite," a fire resisting and non-conducting material of much value for use in connection with marine work in all its branches. Besides its fire proofing qualities, Uralite is odorless, light in weight, non-conductive and vermin-proof. Furthermore, it can be painted, glued, cut with a saw, nailed and otherwise treated like wood. Its many features will appeal very strongly to all of our readers who are interested in the subject of fire prevention. The material is made into very artistic patterns for use in ceilings, adding not only to the artistic effect, but to fire proof qualities, and it has proved of much value for insulation in connection with cold storage.



Next to Rules and Dividers

there is probably no tool more active than perfectly aligned and hardened

Metal Clamps

Boat, launch and ship shops will find provision for all small tool needs in (free) Book No. 17-L.

The L. S. STARRETT CO.
ATHOL, MASS., U. S. A.
NEW YORK CHICAGO

SALPIETRO'S
VEGETABLE BOILER
DISINCRUSTATOR.
(Beware of colorable imitations.)

Cleanses thoroughly all kinds of Steam Boilers of incrustations of whatever thickness.

Prevents any new formation of incrustations on the sides of Boiler and Tubes.

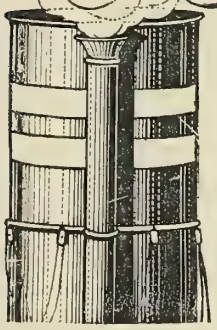
Guaranteed to be free from acids and caustic alkalies and Non-Poisonous.

"SPECIAL BRAND"
For AVOIDING CORROSIONS caused by acidulated water and for MARINE BOILERS working with SURFACE CONDENSERS.

FOR FULL PARTICULARS APPLY TO
GEBRÜDER BAUER & Co.
38, Trinity Square, Tower Hill, LONDON, E.C.

THE WEATHER
Rain or snow, wet or dry, you know your deck is tight if its seams are payed with
Jeffery's Patent Marine Yacht Glue

DIXON'S GRAPHITE on the Marine



Dixon's Flake Graphite unlike oil does not injure boilers; in fact, it is an excellent preventive of corrosion. It is used in marine service with complete success for lubricating cylinders, valves, thrust bearings, stern bearings, etc.

12 pages in our tenth edition of "Graphite as a Lubricant" (just printed) treat of marine lubrication.

Get copy 75-C for yourself.

Joseph Dixon Crucible Co.
Jersey City, N. J. U. S. A.

I CAN SELL YOUR PATENT.

MY NEW METHOD BRINGS QUICK RESULTS,
SEND FOR BOOKLET

O. J. HAEGLER

14 So. Broad Street Philadelphia, Pa.

WALWORTH MFG. CO.
Established in 1842.

Engineers' and Steam Fitters' Tools and Supplies

Boiler Room and Engine Fittings

VALVES OF ALL KINDS

GENUINE STILLSON WRENCHES

SEND FOR FREE CATALOGUE
128 Federal St., BOSTON. Park Row Bldg., NEW YORK CITY.

THERE IS ONE, AND ONLY ONE GENUINE STILLSON WRENCH
AND THAT IS MADE BY THE WALWORTH MFG. CO. BOSTON, U.S.A.

TOOL STEEL THROUGHOUT

IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS

IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS

LOOK FOR SPEAR ON UPPER JAW

WALWORTH MFG. CO. Sole Manufacturers, BOSTON, U.S.A.
FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

A very useful card calendar, in a leather case, is distributed by the Ross Valve Company, Troy, N. Y., manufacturer of regulating valves and feed water heaters. We infer that our readers who will mention INTERNATIONAL MARINE ENGINEERING may obtain a free copy upon application.

"Imperial" motor hoists is the subject of illustrated Bulletin No. 2008, distributed by the Ingersoll-Rand Company, 11 Broadway, New York City. This bulletin states that the "Imperial" motor hoists represent the highest refinement of design in pneumatic hoists of small and moderate capacities.

The Cincinnati Iron Store Company, Cincinnati, Ohio, is distributing a folder describing some of the beams, angles, twisted steel bars, hand and power punches and shears, and other machines this company keeps in stock. The company has a large line of machinery which it offers for immediate sale.

Examples of Rapid Milling, is the title of a handsome 64-page catalogue, published by the Cincinnati Milling Machine Company, Cincinnati, Ohio. Users of milling machines of any description should not fail to send for a copy of this catalogue, which will be sent free to readers mentioning this magazine.

The December stock list, published by the Globe Rolling Mill Company, Smith and Water streets, Cincinnati, Ohio, states that the company can promptly ship from its mill material cut to special lengths and sizes, such as bars, plates, shears, beams, channels and angles.

"Graphoil" steam cylinder graphite cups are the subject of a folder distributed by the Comstock Engine Company, 49 Clymer street, Brooklyn, N. Y. This graphite cup, the folder states, may be conected with any standard sight or forced feed steam cylinder lubricator and delivers graphite to the cylinder with each drop of oil.

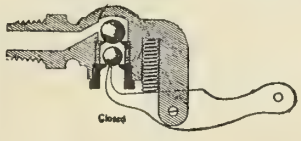
"Fire Prevention" is the title of an illustrated monthly magazine published by A. Irving Brewster, Richmond Hill, N. Y., No. 1, volume 1, of which has just appeared. The magazine will be "devoted to the prevention of conflagrations in American cities and fire hazards in general." The subscription price is one dollar per year.

The State Steam Engineering School, established at 121 Haverhill street, Boston, Mass., by James Coyne, M. E., is described and fully illustrated in a pamphlet Mr. Coyne is distributing. The object of the school is to assist the engineers and firemen of the State of Massachusetts to comply with the requirements of the license law.

Time-checkers and recorders, watchmen's watches, machine cut gears and other specialties manufactured by Llewellin's Machine Company, Kings Square, Bristol, England, are described in a fully illustrated circular which this company is distributing. The specialties are shown in large illustrations, and there is a good deal of descriptive matter. Copies will be sent to any of our readers upon request.

A nautical almanac for 1907 will be sent free by Riggs & Brother, 310 Market street, Philadelphia, Pa., to readers of INTERNATIONAL MARINE ENGINEERING. This is the almanac issued by this concern yearly, and contains the usual tables and information such as the Revised International Rules to Prevent Collisions at Sea, table for finding the latitude by an observed altitude of Polaris, inland rules, new international code of signals, etc.

THE AETNA GAUGE COCK



SUITABLE FOR ANY PRESSURE

HAS DOUBLE BALL VALVE MADE OF BRONZE

MANUFACTURED BY

GEO. W. NEFF

42 BROADWAY NEW YORK, U. S. A.

The Hawthorne Works of the Western Electric Company Chicago, Ill., are described and handsomely illustrated in a booklet this company is distributing.

The Fore River Shipbuilding Company, Quincy, Mass., is distributing a handsomely illustrated booklet giving views of the new turbine steamer *Creole,* and other vessels built by this company, and of the company's ship yards.

"What We Do," is the title of a pamphlet issued by the Wellman-Seaver-Morgan Company, Cleveland, Ohio, manufacturers of steel works and blast furnace equipment, gas producers, valves, cranes, coal handling machinery, steam and gas engines, etc.

Porter's patent combined derricks, working on a single pivot or goose neck, are the subject of an illustrated folder, distributed by Nicholas E. Porter, 101 Leadenhall street, London, E. C., England.

A free sample copy of the Penberthy Engineer and Fireman, a pamphlet issued monthly by the Penberthy Injector Company, Detroit, Mich., will be sent to any reader who will mention this magazine. The subscription price is twenty-five cents per year.

Users of twist drills, reamers, chucks, milling cutters, taps, dies, machinery and machinists' tools, should send for a free copy of the fully illustrated 276-page catalogue issued by the Morse Twist Drill & Machine Company, New Bedford, Mass.

Rapid cut power saws for cutting bars round and square, angles, tees, and beams, are described in folders distributed by Hill, Clarke & Company, Boston, Mass. The manufacturers state that there are over nine thousand of these saws in use.

The propeller wheels made by the Michigan Wheel Company, Grand Rapids, Mich., successor to the Michigan Motor Company, are described and illustrated in the catalogue for 1907 which this company has just issued.

The 1907 catalogue and price list issued by the Crandall Packing Company, Palmyra, N. Y., is a handsomely printed and illustrated booklet of 80 pages, and should be in the hands of every user of packing for steam, ammonia, hydraulic or any other purpose.

Ships' locks and padlocks of every description are advertised by Lowe & Fletcher, Willenhall, England. This company's 48-page catalogue will be sent free upon application to readers mentioning this magazine.

The Edwards Air Pump Syndicate, Limited, 3 and 5 Crown Court, Old Broad street, London, E. C., England, states that its patent air pump has been fitted to more than 2,250 steamers. Free catalogue will be sent to readers mentioning this magazine.

Motors and motor boats are the subject of a very complete pamphlet published by Fay & Bowen Engine Company, Geneva, N. Y. This company makes a specialty of motors using both kerosene and gasoline interchangeably as a fuel.

BUSINESS NOTES.

THE ROBERTS SAFETY WATER TUBE BOILER CO., 39 Cortlandt street, New York, will shortly ship one of its boilers to the Leland Stanford, Jr., University of California. This boiler is to be a part of the equipment of the chemistry laboratory. This makes the tenth Roberts boiler used by colleges. Yale, Harvard, Cornell and the University of Pennsylvania use them in the coaching launches of the "'Varsity" crews.

"ONE OF THE DANGERS IN AIR COMPRESSION," says the Joseph Dixon Crucible Company, Jersey City, N. J., "which has not been fully recognized until within a quite recent period is the liability to explosion in air compressor cylinders when the heat of compression is caused to exceed the flashing point of the oil used for cylinder lubrication. Several accidents of this nature have happened during the last few years." With this statement in mind, the Joseph Dixon Crucible Company draws attention to the advantages of its "Ticonderoga" flake graphite as a cylinder lubricant for air compressors. The company states that this graphite is unaffected by high temperature and cannot be carbonized or ignited, nor can it give off explosive vapors. "It will not accumulate dust or grit. It does not clog discharge valves, and allows great reduction of oil supply."

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

71 BROADWAY NEW YORK

Free, Our Practical Pamphlets :

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

C. E. HEINKE & Co., 87, 88 and 89 Grange Road, Bermondsey, London, S. E., England, are manufacturers of every description of diving apparatus for naval, harbor, dock, salvage works, pearl and sponge fisheries. The company deals in submarine telephones, electric lamps, etc. Attention is called to the company's announcement on advertising page 5 of this issue.

THE BILLINGS & SPENCER COMPANY, Hartford, Conn., manufacturer of machinists' tools and drop forgings, has incorporated in Canada under the name of the Canadian Billings & Spencer Company, Limited, with a capital of $200,000, and will engage in the manufacture of drop forgings and drop forging machinery. The company will be the first in Canada in this line of business, and by its establishment will enjoy certain advantages besides securing reduced freight bills. The location of the new plant has not yet been decided upon. The manager will be Mr. J. Gill Gardner, of Brockville, Ont.

THE FOLLOWING VESSELS have been classed and rated by the American Bureau of Shipping in the "Record of American and Foreign Shipping": American screw *Benefactor,* American screw *Merida,* American steamship *Gypsum King,* American screw *Columbia,* American schooner *Millie Williams,* American schooner *Myrtle Tunnell,* American schooner *Lucinda Sutton,* American schooner *Northland,* American three-masted schooner *Howard B. Peck,* American three-masted schooner *Nantasket,* American barge *John T. Donohue,* Cuban screw *Antilla,* Cuban screw *Camaguey,* British schooner *Elsie,* British schooner *Neva,* British schooner *Atrato,* British three-masted schooner *Freedom,* British three-masted schooner *Water Witch,* British three-masted schooner *Dorothy M. Porter,* British three-masted schooner *Montrose,* British three-masted schooner *Georgiana Roop,* British bark *Alexander Black,* and British barkentine *Skoda.*

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg

THE AIR TIGHT SMOKE BOX DOOR SYNDICATE, Limited, 155 Fenchurch street, London, E. C., England, states that 1,800 Silley's patent smoke box door fastenings were fitted in various ships during 1906. Among the ships completely equipped with this device are the *Lusitania*, *Mauretania*, *Adriatic* and *St. Paul*. The Atlantic Transport Company, the Anglo-American Oil Company, the Hamburg-American Line and many other steamship lines are using this device, which it is claimed keeps the smoke box door perfectly tight and absolutely prevents buckling. It is easily opened and closed, and is said to increase the efficiency under natural and forced draft.

"REXINE" FOR UPHOLSTERING SHIPS' saloons, for motor boats, cushions, etc., is manufactured by the British Leather Cloth Manufacturing Company, Limited, Newton, Hyde (near Manchester), England. "Rexine" is stated to be more than a substitute for leather, "inasmuch as it possesses all the qualities of the latter and yet only costs one-fourth as much." "Rexine" is claimed to be germ proof, and it may be cleansed with soap and water. The manufacturers state that it is rot proof, and that long exposure to sun and salt water has no bad effect upon it. Free samples of "Rexine" will be sent to readers mentioning INTERNATIONAL MARINE ENGINEERING.

REGARDING THE WELIN QUADRANT DAVIT, we have received the following letter: "With regard to the question of freezing up, we can only say that it is an objection which has been raised to us over and over again, but we simply reply that so will an ordinary davit freeze up, and not only so, but there is in that case far more complication of tackle and guys to freeze up—to say nothing of sockets right outside the ship and very inaccessible—than there is in the Welin Quadrant Davit. Moreover, the strongest possible proof that the objection is not a valid one is that we have fitted vessels running on the coldest passages (as, for instance, on the ice-breaking steamers running across the Baltic in the winter time), and we have never yet received any complaint whatsoever on this score. The North German Lloyd and the Hamburg-American Line both were very strong on this objection, but after exhaustively experimenting, they continue to place considerable orders with us. The best answer we can possibly give is to refer our questioner to any one of our users. Yours very truly, A. P. Lundin, manager, 17 Battery Place, New York."

"A LABOR SAVING MACHINE—always ready for work—no changing of knives necessary," is the statement made by the C. C. Wais Machine Company, Cincinnati, Ohio, regarding its new patent universal angle and plate shear, which is said to be a valuable tool for all boiler makers, sheet iron workers and other metal workers. Full particulars will be sent upon application to readers mentioning this magazine.

WE ARE ADVISED that Scott of Kinghorn, Ltd., engineers and shipbuilders, Kinghorn, Scotland, launched during 1906 nine vessels of an aggregate of 3,318 tons gross and 2,600 horsepower, as compared with 1,730 tons and 2,330 horsepower during 1905. The work in hand includes four steamers, one being for French owners, two fast passenger steamers for Australia and the other a light draft steamer for South America. Of the construction during 1906, five vessels were barges and pontoons.

"ALUNDUM IS THE HARDEST, SHARPEST and most durable abrasive material known," says the Norton Company, formerly the Norton Emery Wheel Company, Worcester, Mass. This company recently changed its name because it no longer used emery in the manufacture of its grinding wheels, as alundum was found to be much superior for the purpose. In addition to its use in Norton grinding wheels, alundum is used on cloth and paper for grinding and polishing.

THE CRANDALL PACKING COMPANY, 136 Liberty street, New York City, has had photographed some rings of Crandall's special marine packing Style 340 after being in use for sixteen months on the high-pressure valve stem of a steamship carrying 185 pounds steam pressure. Up to the time this set was removed, it had not given any trouble, and it was only after considerable persuasion that the engineer was induced to remove the packing in order that it might be photographed.

THE PHOSPHOR BRONZE COMPANY, Limited, 87 Sumner street, Southwark, London, S. E., England, states that it is the sole maker of the following alloys: Phosphor Bronze, "Cog Wheel Brand" and "Vulcan Brand;" ingots, castings, plates, strip, bars, etc. Phosphor Tin and Phosphor Copper, "Cog Wheel Brand;" and the following white anti-friction metals: Plastic White Metal, Babbitt's Metal; "Phosphor" White Lining Metal, "White Ant" Metal, No. 1. Full particulars will be sent to readers mentioning this magazine.

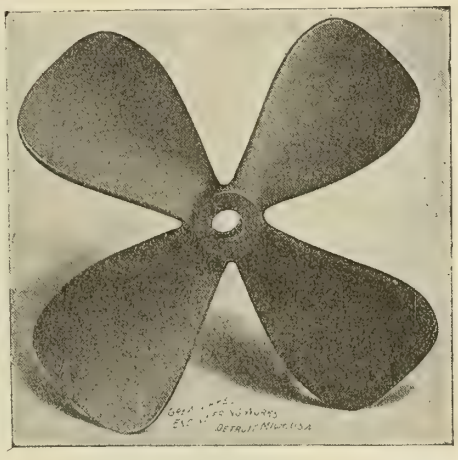
ANTONIO C. PESSANO
PRESIDENT & GEN'L MGR.

GEORGE H. RUSSEL
VICE-PRESIDENT

JOHN R. RUSSEL
SECRETARY & TREASURER

GREAT LAKES ENGINEERING WORKS

DETROIT-MICHIGAN

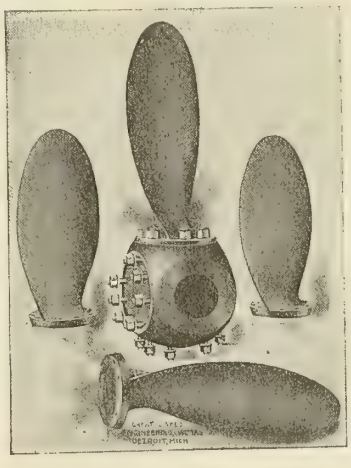


MANUFACTURERS OF

HIGH GRADE SEMI-STEEL

Propeller Wheels

Solid or Sectional



DESIGNERS AND BUILDERS OF

STEEL FREIGHT AND PASSENGER SHIPS

STEEL CAR FERRIES
HYDRAULIC DREDGES
HIGH DUTY AIR COMPRESSORS
MARINE ENGINES

ICE MAKING AND REFRIGERATING MACHINERY

"SMOOTH-ON" RIVET IRON CEMENT, made by the Smooth-On Manufacturing Company, Jersey City, N. J., is especially recommended by the company for use on ships' sides, as it fills all uneven places, making a smooth iron finish. This cement is sold in ten-pound cans ready for use.

A DOUBLE DRUM STEAM CAPSTAN, built by the Marine Iron Works, Station A, Chicago, Ill., is especially made for hard service on river steamers, and is unusually strong yet of moderate weight. This is accomplished through the use of steel in place of the cast iron ordinarily used. A pair of double acting reversible engines transmit their power direct through gears to the main shaft and drums. By means of a key, the capstan is adjustable for either speed or power. The spur gears, bevel gears, bevel pinions and miter gears are all made of steel, and both drums are made of hard semi-steel, the object being to obtain the greatest strength with the minimum of weight and space.

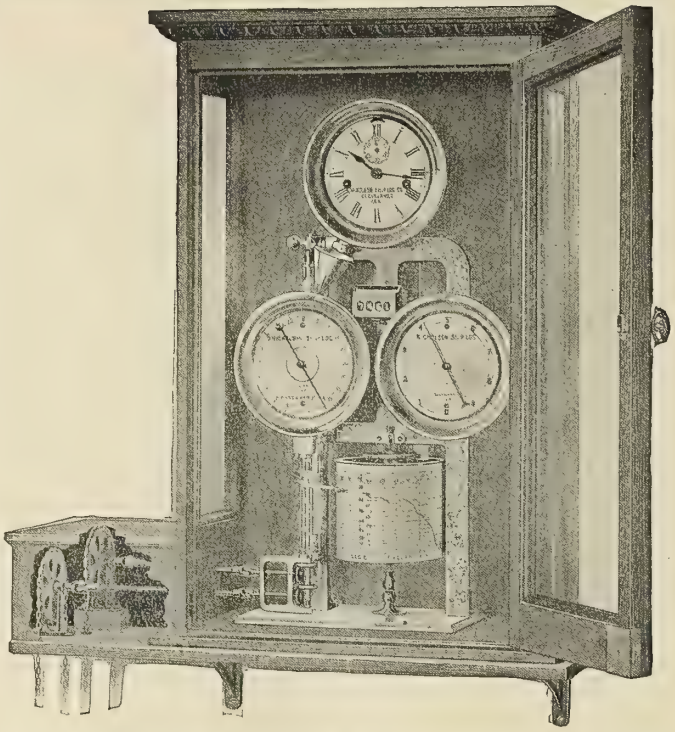
THE AMERICAN BLOWER COMPANY, Detroit, Mich., states that it is doing a large business with shipbuilding companies in the sale of its vertical self-oiling engines, type "A" and "E". During the past year and a half, this company has sold the Great Lakes Engineering Works, Detroit, Mich., sixty-five of these engines, and reports that there has not been a single repair made to any of the engines. The American Blower Company has also just received an order from the Canadian Shipbuilding Company, Toronto, Canada, for fans and engines, this being the second order received from the same concern.

THE DART UNION is stated by the maker, the E. M. Dart Manufacturing Company, Providence, R. I., to be one of the most useful and effectual appliances known for connecting pipes. The unions are made from malleable iron, plain or galvanized, with seats of bronze, fitted and ground to a ball joint. The principle of the ground joint manufactured by this company is to force bronze rings into recesses bored and faced and receive them in both ends of the union. The concave and convex ends are turned and fitted together to a true arc with ground joints. These ends do away with the necessity of packing. The pipe ends and nut combined with the bronze seats are extra heavy, making a very strong fitting adapted to every requirement of a union.

THE EUREKA FIRE HOSE COMPANY, 13 Barclay street, New York City, is a manufacturer of fire hose exclusively. The latest improvement in the manufacture of fire hose, the company states, is an attachment to the loom that weaves a cord of sufficient size in the grooves or corrugations of the fabric "The Eureka and Paragon looms are the most wonderful in the world. We cannot emphasize too much the importance of this recent and valuable improvement in the cover of cotton fire hose in which the corrugations are entirely filled up by another strong cord, which adds twenty-five percent to the strength of the cover and prevents the hose from corrugating when under fire pressure. This makes a wonderful difference in the stream from a long line of hose."

THIRTY DAYS' FREE TRIAL.—One of the latest labor saving devices is a machine for separating and reclaiming oil and waste and other substances which is being put on the market by the Oil and Waste Saving Machine Company, Real Estate Trust Building, Philadelphia, Pa. This device is a turbine engine having a direct connected basket or waste receptacle in which the soiled and oily waste is placed to be reclaimed for future use. The machine is operated by steam, the engine exhausting through the center of the basket, causing the steam to pass through the waste and the perforated walls of the basket, thereby separating oils and greases from the waste by centrifugal force. After the machine has been running about thirty minutes, every trace of oil and grease is forced out of the waste and basket and carried through a pipe to the oil outlet. The oil and grease can now be filtered and used over again as though it were new, while the waste is as clean as though it had never been used. This device, it is believed, will pay for itself many times over in the course of a year, and the company is so confident of its great economic value that it offers to sell a machine subject to a 30 days' trial to any concern asking for the opportunity to give it a test.

WANTED.—Ship draftsmen and assistant ship draftsmen. Pay from $5.04 to $2.00 per diem. For further information, address COMMANDANT, Navy Yard, Washington, D. C.



THE NICHOLSON SHIP LOG

NOT a luxury but a necessity on every ship. Be up-to-date and equip your vessels with this excellent device. The exact speed of the moment constantly before you and recorded on a chart. Also the distance run shown on a counter. Let us send you our catalogue.

NICHOLSON SHIP LOG CO., Cleveland, Ohio

A NEW THROTTLE VALVE
Powell's "Titan" and "Giant"

For Launches
Steam Carriages
Autos, Road Engines
etc., etc.

NO FRICTION

Disks come to a rest before wedging pressure is applied.

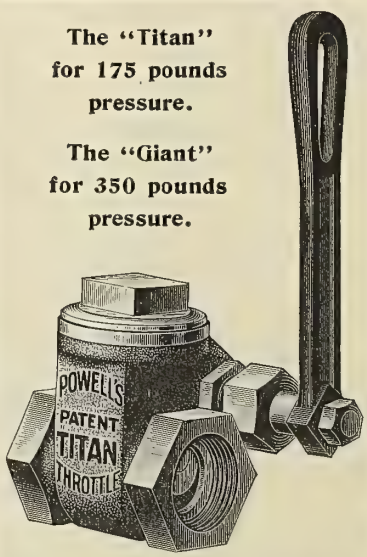
The improved construction enables the valves to be opened or closed with ease under the highest pressure.

SIMPLE—DURABLE

ALL PARTS
MADE TO GAUGE

The "Titan"
for 175 pounds
pressure.

The "Giant"
for 350 pounds
pressure.



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Everything in the steam line for the boiler and engine room
Fully Illustrated in our Catalogue.
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THE BOUND VOLUME

OF

International Marine Engineering

FOR

January=December, 1906

IS NOW READY FOR DELIVERY

PRICE $4.00

Buyer Pays Express Charges

NEW YORK	LONDON
WHITEHALL BUILDING	CHRISTOPHER ST.
17 Battery Place	Finsbury Square, E. C.

"A perfect boiler cleaner" is advertised by the Buckeye Boiler Skimmer Company, Toledo, Ohio. Illustrated folders distributed by this company state that "impurities float and so does the Buckeye automatic skimmer."

"All the good points of all other flooring materials from wood to marble, with many advantages found in none of these, and not one of their disadvantages, make up the great superiority of Pennsylvania Rubber Tiling," made by the Pennsylvania Rubber Company, Jeannette, Pa. This tiling is stated to be unaffected by the hardest wear, absolutely non-porous, waterproof, and therefore, non-absorbent of unsanitary elements, possessing at the same time warmth and resiliency under foot. Special designs are executed without additional cost.

The "Welin Quadrant" davits, made by Axel Welin, 5 Lloyd's avenue, London, E. C., England, have been fitted to the following steamship lines among others: Allan Line; Royal Mail Steam Packet Company, Ltd.; Union Castle Mail Steamship Company; Compagnie Générale Transatlantique; Chargeurs Réunis; Hamburg America Line; Holland America Line; Norddeutscher Lloyd; Toyo Nisen Kabushiki Kaisha, and by several governments. The manufacturer states that more than twelve hundred of these davits are now in use. Full particulars will be sent upon application to readers of International Marine Engineering.

Owing to its increasing business in Maryland, the H. W. Johns-Manville Company, 100 William street, New York City, has opened a branch office in the Equitable Building, Baltimore, Md., which will be in charge of Mr. W. F. Baird, who was previously connected with the company's Philadelphia branch.

R. Cooper, Esq., M. I., Mech. E.; M. I., Mar. E., Marine Coal Storage & Ice Association; Consulting Engineer, 12 Coleman street, London, E. C., England, solicits correspondence regarding marine refrigeration and marine propelling and auxiliary machinery. Mr. Cooper represents many engineering and shipbuilding firms.

The Composite Board Company, 26 Cortlandt street, New York City, has received a contract for the ceilings and the panels of the new turbine steamers *Camden*, *Yale* and *Harvard*. Also for the new steamboat for the Detroit & Cleveland Navigation Company. The same company furnished the saloon and cabins of the *Hendrick Hudson* and the *Governor Cobb*.

David Joy's patent compound assistant cylinder has been fitted, according to the manufacturer David Joy and Cooper, Quayside, Bitterne Park, Southampton, England, to more than 2,000,000 I. H. P. "It drives the valve and prevents all wear and tear. It may be fitted to existing valves, and has been adopted by the British and other admiralties."

Patent derrick fittings enabling heavy weights up to 25 tons to be lifted by the vessel's working derricks, are manufactured by Nicholas E. Porter, 101 Leadenhall street, London, E. C., England. These fittings combine the derricks on a single pivot or goose-neck. They save the cost of a large spare spar, and earn for the shipowners, the fees paid by the shipper for local carriage.

The B. F. Sturtevant Co., of Hyde Park, Mass., has recently supplied a number of generating sets for marine equipment, among which may be enumerated two sets for steamers *Powerful* and *Dreadnought*, four sets for Metropolitan Steamship Co.'s *Yale* and *Harvard*, one for the Old Dominion Steamship *Jefferson*, one for the United Fruit Co.'s steamer, and several for the New York City municipal ferry boats.

The Chicago Nautical School, whose principal is W. J. Wilson, late lieutenant U. S. navy, has opened for the season at the Masonic Temple, Chicago, Ill. All one is required to know before beginning this course of study is a fair knowledge of arithmetic. A nominal tuition fee is charged, and the time occupied in the studies is stated not to be enough to entrench seriously upon other operations. Sessions are held Tuesday and Friday evenings.

A direct flue beader recently put on the market by Deuel & Freebury, Post Office box 1091, Pueblo, Colo., is stated to have turned over, beaded and prosser tightened a No. 11 2-inch flue in ten seconds. This device is simple, and in the eighteen months it has been on the market has worked over six thousand flues, and is stated by the manufacturers to have shown a saving in labor of eighty percent. Those interested should write for a catalogue, mentioning this magazine.

The revolution counters, made by the American Steam Gauge & Valve Manufacturing Company, Boston, Mass., have many improvements in construction, among which are an escapement plate used with dogs which engage the pins on the outer edge of the first wheel, making it positive in action. It may be operated by either a reciprocating or continuous rotary motion, and counts ahead whichever way the shaft revolves. It works equally as well on long or short strokes, and may be reset whenever desired. Free catalogues of this company's engineering specialties of every sort will be sent upon application.

AJAX MANGANESE BRONZE

The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality. It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

THE AJAX METAL COMPANY,

PHILADELPHIA, PA. -:- BIRMINGHAM, ALA.

The Golden-Anderson Valve Specialty Company, Pittsburg, Pa., has opened an office at 136 Liberty street, New York City. This company manufactures cushioned non-returned valves, reducing valves, altitude valves, balanced plug cocks, float valves, steam traps and automatic valves and water columns for railway service.

The drills, chippers and riveters manufactured by the Cleveland Pneumatic Tool Company, Cleveland, Ohio, are stated by the company to be the most powerful tools on the market. This company also makes the Bowes hose coupling, which may be instantly connected or disconnected.

Shears, punches and bending rolls, all sizes up to 75 tons in weight are made by Bertsch & Company, Cambridge City, Ind. This company has had twenty-five years of experience in manufacturing this line of tools.

The Hartford Steam Boiler Inspection & Insurance Company, Hartford, Conn., calls attention to the fact that it has over 200 boiler inspectors throughout the country, and that more than 95,000 boilers are under its supervision. This company's policies cover both property and life in case of accident.

Truscott motors.—The Truscott Boat Manufacturing Company, St. Joseph, Mich., reports that it has been awarded a gold medal at the exposition in Milan, Italy, and that it is very completely represented at the International Exposition at Christchurch, New Zealand.

Boiler shop tools are a specialty manufactured by Wickes Brothers, Saginaw, Mich. Among the boiler shop tools this company makes are vertical and horizontal plate bending rolls, hydraulic riveting machines and flanging clamps and punches and shears.

Steel plate trolleys with clevis connection for reduced clearance, three to ten tons in capacity, are manufactured by the Brown Hoisting Machinery Company, Cleveland, Ohio, engineers and designers of hoisting machinery of every description for the rapid and economical handling of materials.

Capt. B. D. Wolff, Kingston, N. Y., is going to install a No. 11 Roberts safety watertube boiler in the steamer *Morris Block*, to supply steam for a fore-and-aft compound 10 and 18 by 12 inches. This boat makes the run from Poughkeepsie to Kingston, touching at all intermediate points.

Steam steering gears, capstans, windlasses, etc., are manufactured by Harfield & Company, Arundel House, Victoria Embankment, London, W. C., England. This company solicits correspondence with users of auxiliary machinery all over the world.

The equilibrium circulator and steam heating attachment made by H. Bloomsburg & Company, 425 North Carey street, Baltimore, Md., is claimed by the manufacturer to prevent foaming or priming and pitting; that it equalizes expansion and prevents leaks of seams and rivets; that it prevents a deposit of sediment and the formation of scale, and that it increases steaming capacity five to fifteen percent. It is approved by Lloyds.

HELP AND SITUATION ADVERTISEMENTS.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word. No advertisement will be inserted for less than 75 cents (3 shillings) for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Navy engineer officer; Graduate of Naval Academy; young, experienced; desires civil position, has had eleven years' experience with man-or-war machinery. Address *Position,* care of International Marine Engineering, 17 Battery Place, New York City.

Experienced Italian Naval Engineer, living in Genoa, would take the agency for Italy of American ship yard and refrigerating machinery, ship fittings, steering apparatus, mechanical telegraph, capstans, anchors, and other auxiliary machinery. Best references. Address *Representative,* care International Marine Engineering, 17 Battery Place, New York City.

Engine and boiler designer seeks position.—When you pay a large salary you want large returns. Why not employ a technical man who will measure up to a large salary. Such a man wants a chance to show his metal. *"Mechanical Engineer,"* care of International Marine Engineering, 17 Battery Place, New York.

First Class General Draughtsman for steel hull and engine work desires to change position. Address *Hull Draughtsman,* care International Marine Engineering, 17 Battery Place, New York.

Strelinger "Bull" Brand Babbitt metal is stated by the manufacturer, the Charles A. Strelinger Company, Detroit, Mich., to be the result of twenty-five years' experience with Babbitt metals.

The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, manufacturer of staybolt iron and steel bars, both hollow and solid, for use in marine, stationary and locomotive boilers, states that the year 1906 was the banner year in the history of its business, being fully fifty percent better than the showing of any previous year.

Salpietro's Vegetable Boiler Disincrustator is stated to thoroughly clease all steam boilers of whatever thickness, and to prevent any new incrustations. It is guaranteed to be free from acids and caustic alkalies. A special brand is made for avoiding corrosions caused by acidulated water and for marine boilers working with surface condensers. Full particulars will be sent upon application to Gebrüder Bauer & Co., 38 Trinity Square, Tower Hill, London, E. C., England.

J. & E. HALL Ltd.

(ESTABLISHED 1785)

23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,

MAKERS OF

REFRIGERATING MACHINERY

ON THE

CARBONIC ANHYDRIDE (CO_2) SYSTEM.

Originally introduced by them into England.

MACHINES OCCUPYING MINIMUM SPACE FOR BOTH LAND AND MARINE INSTALLATIONS.

FULL PARTICULARS ON APPLICATION.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

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Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
12 West 31st Street, New York.

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314 Madison Avenue, New York City.

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5 Adelphi Terrace, London, W. C.

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" 6, William Arste, 322 Pine St., St. Louis, Mo.
" 7, William T. McElwee, Box 572, Fire Boat, Portland, Maine.
" 9, William Bridges, 784½ Twelfth St., Milwaukee, Wis.
" 12, Clarence C. King, 618 N. Ninth St., La Crosse, Wis.
" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
" 14, Joseph F. Dumas, Box 598 Mobile, Ala.
" 15, R. E. Lee Skinner, 622 Louisa St., New Orleans, La.
" 17, George S. Collins, 2277 Vine St., Cincinnati, O.
" 18, William Hurst, 715 Walnut St., Cairo, Ill.
" 20, Joe B. Barry, 640 Keel St., Memphis, Tenn.
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" 35, Martin K. Anderson, 36 East St., San Francisco, Cal.
" 36, Joseph Thomas, 57 Sea St., New Haven, Conn.
" 37, Jno. H. Cunningham, 316 Boston St., Toledo, O.
" 38, C. H. Wolford, 73 Starr Boyd Building, Seattle, Wash.
" 39, F. W. Ackerman, 910 W. Seventh St., Erie, Pa.
" 40, Charles Drouet, 1003 Avenue I, Galveston, Tex.
" 41, Frank Forbes, 133½ First St., Portland, Ore.
" 42, James Manning, 802 E. Duval St., Jacksonville, Fla.
" 43, Archie R. Wright, 1209 Suffern St., Port Huron, Mich.
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" 65, George W. Conner, Care of Consumers Coal Co., Charleston, S. C.
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" 70, Frank H. Goodell, 138 Eighth St., Astoria, Ore.
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" 72, William T. Findlay, 130 W. Bridge St., Oswego, N. Y.
" 73, Joseph Prevot, 1146 Pine St., Green Bay, Wis.
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" 82, Fred H. Gowell, 427 Middle St., Bath Maine.
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" 87, Harry Firby, 430 Helen Ave., Detroit, Mich.
" 88, Charles O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, Edward R. Lord, 102 Ogden St., Ogdensburg, N. Y.
" 91, R. B. Huston, 18½ Williams St., Har. Sta., Ashtabula, Ohio.
" 92, Joseph D. Budd, Box 50, Station I, W. S., Saginaw, W. S., Mich.
" 93, M. E. Davis, 920 E Street, N. W., Washington, D. C.
" 94, John P. Harris, P. O. Box 40, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, S. T. Powers, 723 Eleanore St., New Orleans, La.
" 100, H. G. Wootten, 1717 Makiki St., Honolulu, H. I.
" 101, Thomas G. Williams, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, 16 Pollock St., Box 225, New Bern, N. C.

THE CRANDALL PACKING COMPANY, Palmyra, N. Y., has moved its Cleveland office from 9 South Water street to much larger quarters at 805 Superior street.

REMOVAL NOTICE.—James L. Robertson & Sons, Incorporated, and the Eureka Packing Company's sales department, have removed from 204 Fulton street to 48 Warren street, New York City.

"Usudurian" sheet packing, which is stated to be self-vulcanizing, economical, and best for vibrating joints, is manufactured by the Revere Rubber Company, Boston, Mass., which will send catalogue and full particulars upon application.

THE STEAM GAUGE MANUFACTURING COMPANY, Sams Lane, West Bromwich, England, manufactures steam pressure gauges, vacuum gauges, hydraulic gauges, and compound pressure and vacuum gauges of every sort.

JOHN JACKSON, 232 St. John street, Clerkenwell, London, E. C., England, patentee and maker of all kinds of pressure gauges and fittings, solicits correspondence with users of gauges of any sort throughout the world.

CHAIN CABLES, RIGGING CHAINS, patent and common anchors, crane chains suitable for engineering purposes, and pulley block chains of every description, are manufactured by Barzillai Hingley & Sons, Lion Chain Works, Cradley Heath, Staffordshire, England.

"LASCAR" METALLIC PACKING, and asbestos and rubber goods of all kinds, are manufactured by Robert Beldam, 79 Mark Lane, London, E. C., England. Mr. Beldam states that he makes special quotations for export trade.

GEORGE LAWLEY & SON CORPORATION, South Boston, Mass., has just placed an order for a Roberts safety watertube boiler, measuring 7 feet by 7 feet 6 inches, to be used in conjunction with forced draft, for the steam yacht *Helena*.

USERS OF MANILA, SISAL and transmission rope, and wire rope should send to the Waterbury Company, 69 South street, New York City, for catalogues and circulars describing this company's product.

THE REFRIGERATING MACHINERY made by J. and E. Hall, Limited, 23 St. Swithin's Lane, London, E. C., England, is operated on the carbonic anhydride system. These machines are stated to occupy the least possible space in both marine and land installations.

METALLIC GASKETS.—Every engineer who has trouble with making steam joints tight should ask for information regarding the metallic gaskets which are sold by Drake & Thorp, 32 Broadway, New York. These gaskets are made of copper and other metal on a scientific basis, and have proved very efficient.

KEROSENE AS A MOTOR FUEL.—The Fay & Bowen Engine Company, 98 Lake street, Geneva, N. Y., states that it makes a perfectly successful convertible kerosene or gasoline motor, single or multi-cylinder, 3½ to 33 horsepower. "The Fay & Bowen guarantee is on every one."

MARINE GENERATING SETS—The General Electric Company, Schenectady, N. Y ,states that it is the largest maker in the world of generating equipments for all classes of marine work. This company makes simple and compound engines direct connected to generators in all sizes.

"ALMOST ANY BEARING that requires oil in it will work harder in winter than in summer, as oil is apt to be more viscous when cold than when warm." The Joseph Dixon Crucible Company, Jersey City, N. J., states that a solution of this difficulty is found in the use of flake graphite along with some mineral oil.

Neversink Cork Jackets and Life Belt

Each Preserver stamped by United States Inspector, guaranteeing proper buoyancy

Safest **Solid Cork Life Preservers Ring Buoys and Fenders** ***Cheapest***

Approved and adopted by U. S. Board of Supervising Inspectors. Also adopted by the principal Ocean, Lake and River Steamer Lines as the only Reliable Life Preserver.

Metallic and Wooden Life Boats

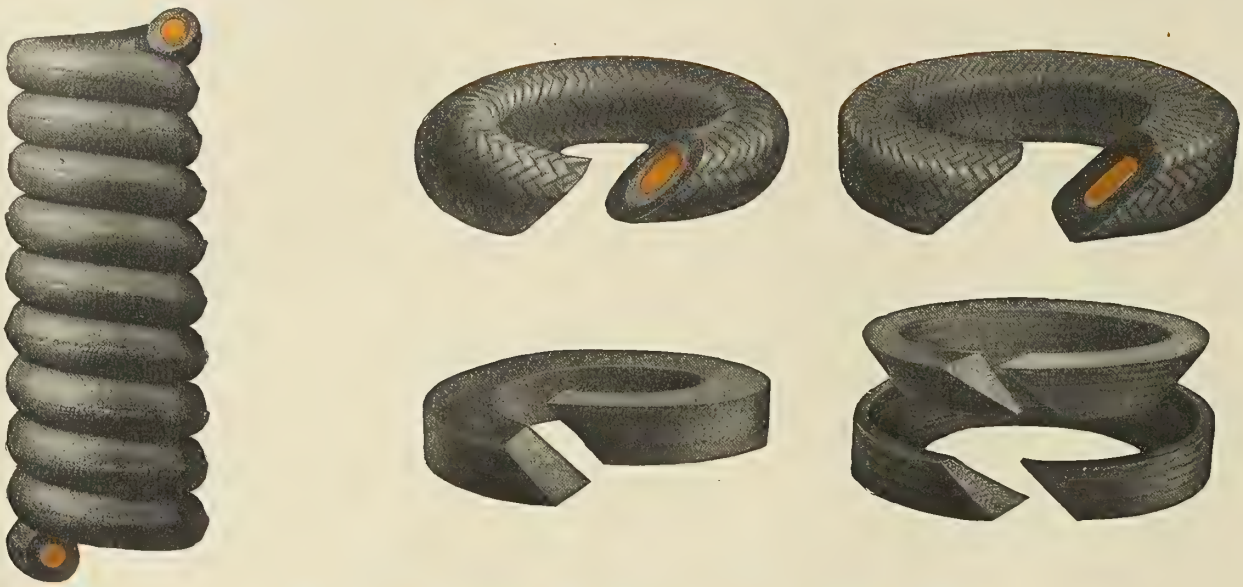
Metallic Life Rafts. Lyle Guns. Marine Drags

DAVID KAHNWEILER'S SONS

Franklin Square and Dover Street

Telephone, 5076 John **NEW YORK CITY**

The PEERLESS is PEERLESS



PEERLESS
Piston and Valve Rod Packing

If you have never used PEERLESS you have never thoroughly enjoyed the hum of an engine in perfect working order.

Get a box to-day and enjoy the "HUM."

Twelve to eighteen months perfect service.

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16-24 Woodward Ave., Detroit, Mich.
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Cor. Common and Tchoupitoulas Sts., New Orleans, La.
1621-1639 17th St., Denver, Colo.
220 South Fifth St., Philadelphia, Pa.
17-23 Beale St. and 18-24 Main St., San Francisco, Cal.
Cor. Ninth and Cary Sts., Richmond, Va.
16 and 18 S. Capital Ave , Indianapolis, Ind.
1221-1223 Union Ave., Kansas City, Mo.
709-711 Austin Ave., Waco, Tex.
51-55 N. College St., Charlotte, N. C.
634 Smithfield St., Pittsburg, Pa.
Railroad Way and Occidental Avenue, Seattle, Wash.

TRADE PUBLICATIONS.

We have received from Adam Cook's Sons, 313 West Street, New York City, makers of Albany Grease, a booklet which they have just issued dealing with "Automobile Lubrication." It consists of sixteen pages and the text is interspersed with drawings showing how "Albany Grease" is applied in packing compression cups, transmission gears, etc. Typographically the booklet is very attractive and the text contains information which will be received with interest by every one who appreciates what an important feature lubrication has become in the economical and smooth running of the motor car. Helpful instructions are given for the lubrication of all the various parts of the machine where reduced friction means power gained. As indicating the economy of "Albany Grease," it may be stated that it does not drip, gum, freeze or leave a sediment, and lubricates only when the machine is in operation. Many other interesting facts may be gleaned from the booklet, a copy of which will be cheerfully mailed to those of our readers who make application to Adam Cook's Sons.

Windlasses, capstans, hoisting engines and ship machinery are described and illustrated in a very complete and fully illustrated catalogue issued by the American Ship Windlass Company, Providence, R. I. The catalogue states that great improvements have been made in this company's windlasses, and that the machines now offered are the result of fifty years of practical experience, and are the most efficient, durable and finished machines in their line. The catalogue says that the American Ship Windlass Company was the first to make an iron windlass. Other circulars issued by this company, free copies of any or all of which will be sent to readers mentioning International Marine Engineering, are No. 5, describing the "Providence Steam Capstans and Providence Steam Gypseys"; No. 6, describing the "Babbitt Patent Stockless Anchor"; No. 7, the "Providence Hand Winches"; No. 8, "Providence Hand Capstans"; No. 9, the "Winter Patent Wharf Drop"; No. 10, "Yacht Windlasses, Capstans, Center Board and Mast Winches, Stockless and Mushroom Anchors, Mooring Bits and Gypsey Windlasses"; No. 11, the "Shaw & Spiegle Patent Automatic Steam Towing Machine."

The "Grip" Drilling Machine Chuck is described and illustrated in a circular distributed by Ludw. Loewe & Company, Ltd., Farringdon Road, Clerkenwell, London, E. C. This drilling machine chuck will hold any drill from one-eighth inch to one-half inch in diameter. No key is employed to move its jaws, and there are no gears, screws or other power and time wasting devices for moving the jaws. It is claimed that this chuck is the only one having a corresponding capacity, which will drive drills made of high speed steel at their full cutting efficiency. In actual tests one-half inch drills made of high speed steel have been driven with a feed and speed resulting in the total collapse of the drill without causing the shank to turn in the chuck.

Catalogue No. 36 issued by the Ingersoll-Rand Company, 11 Broadway, New York City, is a book of 184 pages covering the complete line of Ingersoll-Sargeant compressors. A brief description is given of each of the nine classes, followed by tables of sizes, etc., and illustrations of typical machines and representative plants. An unusual feature of this publication is the number of actual illustrations of machinery covering almost every line of industrial activity. Several pages are devoted to some entirely new and variable tables of information on compressed air. The company has aimed to make this book not merely a trade catalogue but a text book of useful information to engineers.

Electrical Tool Catalogue No. 21 has just been issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., which describes and illustrates this company's line of electric drills, grinders, drilling stands, magnetic old man-hoists, etc. A free copy will be sent to any reader mentioning this magazine. The catalogue states that the success of any portable tool depends upon its ability to perform the work for which it is designed, with the greatest dispatch and the least consumption of energy; its ease of manipulation and its freedom from liability to break down under hard usage, and that an intimate knowledge of the conditions and requirements for the operation of portable tools, combined with the intelligent design of the motors by expert electrical engineers, has produced Duntley electric tools, which are all capable of doing the work for which they are designed, with great rapidity and with minimum consumption of energy.

C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road,
Bermondsey, London, S.E.

Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries.

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

Cables.—"HEINDIG, LONDON."
Codes.—A.B.C. 4th & 5th Editions.
Telephone—1998 HOP.

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Keuffel & Esser Company, 127 Fulton street, New York City, manufacturer of drawing materials, mathematical and surveying instruments and measuring tapes, is distributing a neat calendar displaying a colored illustration of a surveying transit.

Inclined Direct Acting Surface Condensing Paddle Engines; Patent Signal Crank Enclosed Engines for Ship and Other Electric Lighting Sets; Patent Enclosed Engines for Power, Traction and Lighting; Steam Dynamos for Ship Lighting; and High Class Compound Double Crank or Triple Expansion Three Crank Engines, are the titles of illustrated circulars published by W. Sisson & Company, Limited, Gloucester, England, free copies of which will be forwarded to any of our readers who will mention this magazine.

"Reliable" water gauges and water columns are described in a folder distributed by the Reliable Water Gauge Company, 1616 Pine street, St. Louis, Mo. The company states that the extensive use of its water gauges in the United States Navy, in well known steam yachts, in stationary boilers, locomotives, etc., is a sufficient guarantee of their reliability. "The gauge cases are of oxidized brass. The glasses are of special composition and temper, and will withstand any pressure and temperature to which a boiler can be safely subjected without the slightest danger of breaking."

"Buffalo" blacksmith tools are described and illustrated in catalogue No. 77 issued by the Buffalo Forge Company, Buffalo, N. Y. This catalogue describes in addition to the regular line of tools which the company has made for several years, several entirely new machines, as well as changes and improvements in the older designs. One of the "leaders" for 1907 is the down draft forge No. 660 with a tile as the first section of the stack. This forge is guaranteed for five years. The down draft supplies the fire with the hot blast, and the company states that this arrangement reduces the cost of fuel by one-third.

Flexible metallic tubing is described in folders distributed by the United Flexible Metallic Tubing Company, Ltd., 112 Queen Victoria street, London. One of these folders states "this important invention furnishes manufacturers with a reliable and practically indestructible substitute for rubber hose, capable of carrying steam at all pressures up to 300 lbs. per square inch." It may also be used with advantage for oil, gas, compressed air and hydraulic purposes, and it is admirably adapted for junction pipes and for engineering work of every description. The tubing is stated to be unaffected by heat or cold and to remain flexible at all temperatures.

Belt-driven compressors are described and illustrated in Bulletin No. 56 issued by the Roteng Engineering Corporation, 299 Broadway, New York City. Regarding the company's belt-driven compressor, the bulletin states that this is a new type of machine possessing many advantages over the prevailing reciprocating pumps, and which in general outline resembles an electric generator. By removing the upper portion the entire machanism is exposed for examination or repair. Where belt power is used for driving the compressor, a belt tightening sub-base is furnished which the company states is an advantage never before obtained in compressor work.

The Marine Stirling Boiler is described and illustrated in a large 40 page catalogue published by the Stirling Boiler Company, Limited, Motherwell, Scotland. This catalogue states that the Stirling boiler possesses great advantage as to cleanliness. The feed, entering the boiler at the point most remote from the fire, is evenly distributed over the back section, and if impure water is used, the bulk of the deposit thus takes place at a point where the temperature is comparatively low, and in the mud drum where it can be blown off as required. The deposit of scale-forming matter in the hottest part of the boiler is carefully guarded against, and the tubes being nearly vertical are not liable to a deposit of dust to the same extent as horizontal tubes. Many other advantages claimed for this company's boilers are mentioned in this catalogue, a free copy of which will be sent to readers mentioning this magazine.

Agents Wanted Everywhere for

JEFFERY'S PATENT MARINE YACHT GLUE

L. W. FERDINAND & CO.

IMPORTERS AND SOLE AGENTS FOR UNITED STATES AND CANADA

201 SOUTH ST., BOSTON, MASS.

The State of the Art

in Caliper and Divider making is pretty well shown in our Catalogue. We make about every style that experience has shown to be desirable.

Send for FREE Catalogue No. 17-L of Fine Mechanical Tools.

The L. S. Starrett Co.

Athol, Mass., U. S. A.

SALPIETRO'S

VEGETABLE BOILER

DISINCRUSTATOR.

(Beware of colorable imitations.)

Cleanses thoroughly all kinds of Steam Boilers of incrustations of whatever thickness.

Prevents any new formation of incrustations on the sides of Boiler and Tubes.

Guaranteed to be free from acids and caustic alkalies and Non-Poisonous.

"SPECIAL BRAND"

For AVOIDING CORROSIONS caused by acidulated water and for MARINE BOILERS working with SURFACE CONDENSERS.

FOR FULL PARTICULARS APPLY TO

GEBRÜDER BAUER & Co.

38, Trinity Square, Tower Hill, LONDON, E.C.

Tenth and Latest Edition

Copy 75-C FREE

This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks" discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.

Jersey City, N. J.

THE time fixed by the Department in its advertisement of October 26, 1906, for the submission of subsurface and submarine torpedo boats for test and for the receiving of proposals for furnishing such vessels for the Navy, under the act of June 29, 1906, has been changed from February 18th to March 5th, 1907, at 12 o'clock noon. TRUMAN H. NEWBERRY, Acting Secretary of the Navy. 1-16-'07.

WALWORTH MFG. CO.

Established in 1842.

Engineers' and Steam Fitters' Tools and Supplies

Boiler Room and Engine Fittings

VALVES OF ALL KINDS

GENUINE STILLSON WRENCHES

SEND FOR FREE CATALOGUE

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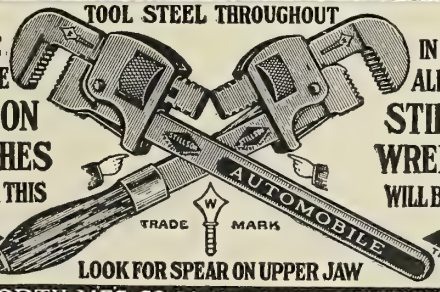
THERE IS ONE AND ONLY ONE GENUINE STILLSON WRENCH AND THAT IS MADE BY THE WALWORTH MFG. CO. BOSTON, U.S.A.

TOOL STEEL THROUGHOUT

IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS



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LOOK FOR SPEAR ON UPPER JAW

WALWORTH MFG. CO. Sole Manufacturers, BOSTON, U.S.A.

FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

Pneumatic tools are the subject of a booklet issued by the Ingersoll-Rand Company, 11 Broadway, New York City, a free copy of which will be sent to readers of this magazine, upon application.

"Do You Know" is the title of a folder issued by the Detroit Seamless Steel Tubes Company, Detroit, Mich. Among the many questions asked in this booklet are: "Do you know that cold drawn seamless steel boiler flues have been on the market only a few years, but are now recognized as the highest type of tube produced, and are standard in the United States navy?" "Do you know that any information desired regarding the Detroit flue will be gladly furnished by the makers?"

A handsome calendar lithographed in several colors, showing a water scene among the woods, will be sent free to readers mentioning this magazine by Alfred B. Sands & Son Company, manufacturer of marine plumbing supplies, 242 Water street, New York City. In addition to having spaces for memorandums for each day of the year, there are tables showing time of high and low water in New York and Boston for every day of the year.

"Royal" steel forges and "Royal" blowers are described in illustrated leaflets distributed by W. H. Dangel & Company, 140 Dearborn street, Chicago, Ill. **The gear case of the blower** is oil tight and dust proof, and the gears, which are made of phosphor bronze and steel, run in a continuous bath of oil. The crank turns forward or backward, and the makers state the blowers are noiseless and easy to operate, besides furnishing a powerful blast.

The home and suroundings of the Bantam Anti-Friction Company, Bantam, Conn., are handsomely illustrated by nine halftone reproductions on a calendar the company is distributing. In addition to a comprehensive view of the factory and homes of the employees, a most alluring picture is given of the President and General Manager of the Company, Mr. W. S. Rogers, in the act of pulling a five-pound trout from the Bantam river. Another view of the "pay car" shows Mr. Rogers seated in a handsome one hundred horsepower automobile.

"About the New 'Trussit' Metal" is the title of a folder issued by the General Fire Proofing Company, Youngstown, Ohio. The company states that in presenting this newly designed reinforced metal for fire proof construction, attention is invited to the important fact that in this type of cement construction no wood form is necessary. "Trussit" metal is made in sheets of 15½ inches by 96 inches, and it will carry with a factor of safety of four, all ordinary rough loads on spans of 4 or 5 feet.

An illustrated catalogue of padlocks will be sent to readers of this magazine upon request, by Lowe & Fletcher, Willenhall, England. This company makes a specialty of admiralty padlocks in all sizes from one to four inches. Among the many colored illustrations is one of the company's No. 80 extra strong brass padlock with gun metal shackle and keys, which is supplied to the admiralty in large quantities. The company also calls attention to its No. 667 all brass straight rim lock with gun metal or iron keys, and its No. 9209 galvanized galley locks.

Heraeus Le Chatelier Pyrometers for measuring heat in all kinds of furnaces and for molten metals up to 2920 degrees Fahrenheit, are described and illustrated in a pamphlet issued by Charles Engelhard, 41 Cortlandt street, New York City, a free copy of which will be sent to readers mentioning this magazine. This device, the pamphlet states, is used in many laboratories, but is not intended merely for scientific research, as it can be readily operated in mills and factories by any operative of ordinary intelligence.

The January issue of "Graphite" published by the Joseph Dixon Crucible Company, Jersey City, N. J., calls attention to the fact that the company has been eighty years in the business of mining and manufacturing graphite, and that the demand for its product is so large that its already immense plant must be shortly increased in size. "Graphite" is issued in the interest of the graphite trade, and always contains articles of interest to engineers. Readers who will mention this magazine will be placed upon the free subscription list.

The Davis "Calyx Diamondless Core Drill" is described and illustrated in catalogue No. 91 issued by the Ingersoll-Rand Company, 11 Broadway, New York City. This is a prospecting drill producing cores from 1⅝ to 15 inches in diameter from any depth to 6000 feet. It does not use diamonds, but the manufacturers state that it has never yet found the material which it could not cut at a paying rate. The apparatus is built in different sizes, the smallest being operated by hand and the largest requiring 20 or more horsepower and capable of removing cores of large diameters at a great depth.

Users of packing should write the Garlock Packing Company, Palmyra, N. Y., for catalogue No. 32 which will be sent free upon application to readers mentioning this magazine.

An illustrated catalogue of all steel hand lever punching and shearing machines, multiple revolver and circular punching and sheering machines for hand and steam power is distributed by A. Vernet, Dijon, France.

Users of marine wire rope should write to W. N. Brunton & Son, Musselburgh, Scotland, for catalogues and circulars. This company makes wire rope of every description for ships' rigging and other purposes.

A large calendar will be sent free by the Star Brass Manufacturing Company, 108 East Dedham street, Boston, Mass., manufacturers of pop safety valves, to readers who will mention this magazine. This company also makes revolution counters, marine clocks, indicators and engineering specialties of all kinds.

Therometers, barometers, pressure recorders, steam, water and gas gauges, governors, and other engineering specialties are described and fully illustrated in a catalogue issued by Alexander Wright & Company, Limited, Wesminister, England, a free copy of which will be sent to all of our readers upon request.

A pocket tool list just issued by Tower & Lyon Company, 95 Chambers street, New York City, manufacturers of hardware specialties and fine tools, will be sent free to any reader mentioning this magazine. The catalogue states that this company guarantees all of its goods, and will replace or make good any showing defect due to the fault of the manufacturers.

Garvin vertical spindle milling machines are described and illustrated in circular No. 53 issued by the Garvin Machine Company, Spring and Varick streets, New York City. The company's No. 14 vertical spindle and milling machine is now made with power cross feed.

W. L. Byers & Company, Ltd., Sunderland, contractors to the Admiralty and the Japanese and other Governments, are mailing a wall card handsomely printed in many colors, the principal feature of which is a half tone photograph of H.M.S. *Hampshire,* dressed in rainbow fashion in honor of the county presentation at Portsmouth in 1905, showing the ship to be equipped with Byers stockless anchors.

Ingersoll-Rand air and gas compressors are the subject of a booklet issued b the Ingersoll-Rand Company, 11 Broadway, New York City, which sketches several of the many classes of this company's compressors, full details of which are contained in separate pamphlets which will be sent free upon application, to readers of this magazine.

Smart & Brown, Erith, Kent, England, are distributing cards illustrating and describing this company's milling and wheel cutting attachment. One of the illustrations shows " a few examples of every day wheel cutting executed by our milling attachments, consisting of phosphor bronze timing wheels, steel reversing gear wheels, gland nuts, pump pinions, index wheels, chain wheels, etc."

Clutches, hauling plants and mill gearing are described and illustrated in a 200 page catalogue issued by David Bridge & Company, Castleton, Manchester. This company also makes patent oil separators, water softening plants, hydraulic valves, steel shafting and self-oiling bearings. A free copy of the catalogue will be sent to readers of International Marine Engineering.

An illustrated price list of the Parsons petrol, paraffin or alcohol engines and complete propeller sets, will be sent free upon application to readers mentioning this magazine by the Parsons Motor Company, Limited, Town Quay, Southampton. The Parsons engine is not a high speed engine, but is built for long runs at full power. In the 1905 trials, the paraffin consumption of the Parsons engine was less than one-tenth gallon per horsepower hour.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

71 BROADWAY NEW YORK

Free, Our Practical Pamphlets :

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

BUSINESS NOTES.

Soluble metal boiler compound. New Era Soluble Metal Boiler Compound differs from all Chemical Boiler Compounds, according to the manufacturer, in the following respects: "It absolutely prevents corrosion or pitting of boilers; all chemical compounds accelerate this action; it prevents boiler scale from clinging to the surface of the boiler, causes that which has formed to become detached and fall, and by its solvent properties prevents the formation of new scale, thus leaving the calcareous deposits of the water in a state in which they can easily be carried off through the blow-out. All chemical compounds through their chemical action on the metal of the boiler not only corrode and pit the same but cause the calcareous deposits of the water to become attached to the boiler in the form of a compound mineral cement, of which the chemical compound always forms a very important constituent part. The action of this improved product is electrolytic. Hence an overcharge of the compound can neither result in injury to the boiler nor in waste of material; for if the soluble metal should be dissolved more rapidly that it is neutralized by the calcareous deposits in the water, it would be deposited upon the inner surface of the boiler in the form of a protecting metallic film, which in turn would be dissolved to prevent the formation of scale in case the containers should become empty." Safety, convenience and dependable results are the characteristics most desired in a boiler compound, and it is claimed that this improved product possesses all three. Complete information can be secured by addressing The New Era Mfg. Co., Kalamazoo, Mich.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg

The Ferro Foundry & Machine Company, Cleveland, Ohio, recently sold five hundred "Ferro auto-marine engines" to the W. H. Mullins Company, Salem, Ohio. The price was approximately $65,000, and is stated to be the largest contract for small marine gasoline engines ever made in America. The Ferro Foundry & Machine Company states that before this order was placed, the W. H. Mullins Company considered practically every type of marine engine on the market and that competitive tests were made at Salem in various boats.

The Power Specialty Company, 111 Broadway, New York City, manufacturer of the Foster superheater, has opened branch offices in Boston, Chicago, Philadelphia and St. Louis. The company reports recent orders from the following concerns for the installation of Foster superheaters: Southern Pacific Steamship Company; the Navy Yards at Washington, Brooklyn and Charlestown; the American Locomotive Company; New York, New Haven and Hartford Railroad Company; International Harvester Works; Philadelphia and Western Railway; New Jersey and Hudson River Railway and Ferry Company; Solvay Process Company, Raritan Copper Company; Western Steel Car and Foundry Company, and James S. Kirk & Company. The Power Specialty Company has also equipped a large number of internally fired and return tubular boilers, and has built a great many separately fired superheaters.

"What a lubricant does—not what it costs—is the only true and fair basis of its value," says the New York and New Jersey Lubricant Co., 14 Church street, New York City. "The value of a lubricant is a matter quite apart from its mere cost at so much per pound or per gallon. Non-fluid oils are economical lubricants—the most economical, in fact, that you can buy—without regard to price per pound or per gallon, because they do all that good lubricants should do. They lubricate like oils and go much further because there is no waste. They last as long as greases, but they do not have to be warmed up (by frictional heat) before they soften and lubricate, thus causing no increase in friction and coal consumption. One fair trial will prove the exact truth of our claims. We want you to test non-fluid oils, and we will send you, without any cost to you, a free sample and an improved cup for feeding. In writing, please state just where you will test the sample."

Crane Company's steel foundry. Crane Company, Chicago, Ill., now has its new steel foundry in full running order. In this department steam valves and fittings will be a specialty, and the facilities are such that promptness in filling all orders for these goods is assured. This addition to the company's business is another proof of its efforts to keep a little ahead of the times.

Roberts water tube boilers. Mr. Charles E. Hyde of the New London Marine Iron Works, New London, Conn., has installed a Roberts boiler in his yacht *Never Again*. Mr. Lewis Nixon, 26 Cortlandt street, New York City, has installed a Roberts boiler in his house boat *London*. Mr. E. P. Morse, of the Morse Dry Dock & Repair Company, South Brooklyn, N. Y., has a Roberts boiler in his yacht *Why Not*. Mr. C. B. Orcutt, president of the Newport News Shipbuilding & Dry Dock Company, Newport News, Va., has used Roberts boilers in his steam yachts for nearly fifteen years, and Mr. Nourse of the Marine Iron Works, Chicago, Ill., has done likewise. The manufacturer of these boilers, the Roberts Safety Water Tube Boiler Company, 39 Cortlandt street, New York City, states that all of them were bought without solicitation.

Notable exhibit of S. F. Hayward & Company at Exposition of Safety Appliances. A notable exhibit at the Exposition of Safety Appliances at the Museum of Natural History, New York City, is that of S. F. Hayward & Company, 20 Warren street, New York City. Among the many devices shown is a variety of Glazier Swiveling Nozzles for fire departments, factory and interior use; also Wilson Automatic Portable Fire Escapes in various sizes, which although they are in extensive use all over the country seem to have attracted as much attention as though shown for the first time. It is reported that 273 descents were made in eight hours for the instruction of visitors. There are also shown smoke and ammonia proof helmets, patent respirators, chemical fire extinguishers, chemical fire engines for volunteer fire departments, factory and warehouse protection, country estates, etc. Samples of the Hayward life net, scaling ladders, etc., are also on exhibition. The exhibit received very gratifying recommendation and has aroused widespread interest.

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GREAT LAKES ENGINEERING WORKS

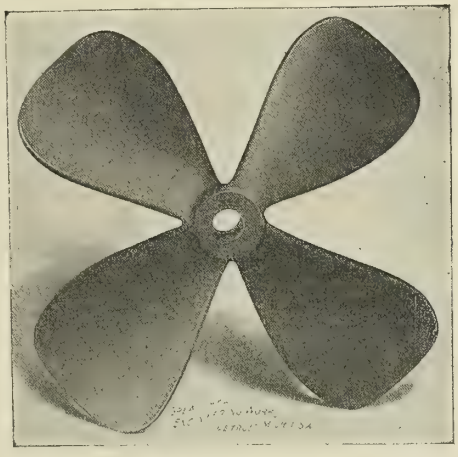
DETROIT-MICHIGAN

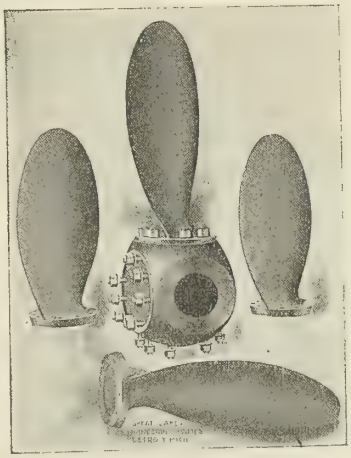
MANUFACTURERS OF

HIGH GRADE
SEMI-STEEL

Propeller Wheels

Solid or Sectional





DESIGNERS AND BUILDERS OF

STEEL FREIGHT AND PASSENGER SHIPS

STEEL CAR FERRIES
HIGH DUTY AIR COMPRESSORS

HYDRAULIC DREDGES
MARINE ENGINES

ICE MAKING AND REFRIGERATING MACHINERY

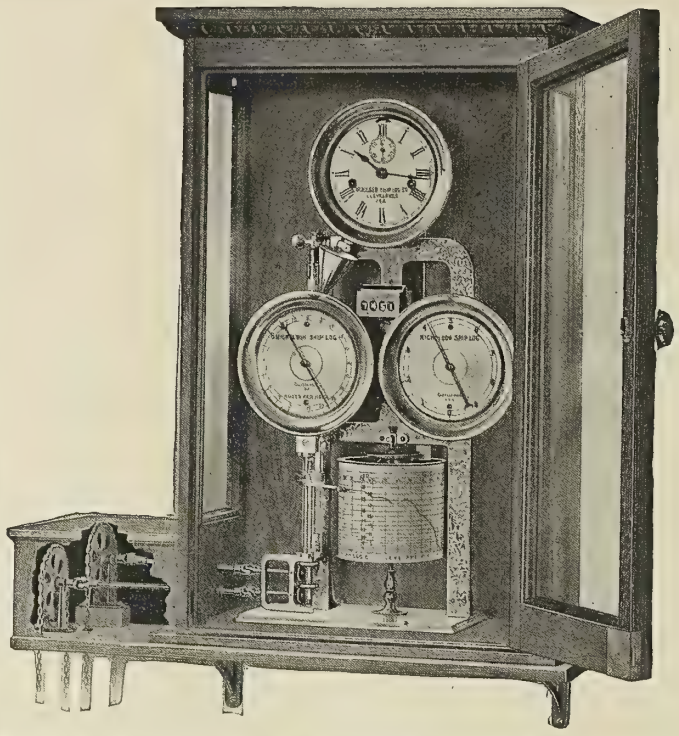
The Sandusky Foundry & Machine Company, Sandusky, Ohio, four years ago began the manufacture of power pumps unhampered by designs and patterns, and has developed a complete line which the company states is correct in theory and practice, with the metal properly distributed, the bearings ample, the gears large enough for the work, all air boxes eliminated, and the valves and seats correct. These pumps are thoroughly accessible for inspection and adjustment. The company also makes a line of power vacuum pumps, vacuum rolls, humidifying and damping apparatus, pulp screens, painting machines, etc.

A free working, quick drying and exceedingly durable varnish is made by the Standard Varnish Works, 29 Broadway, New York City. The company states that its varnish resists the action of salt or fresh water better than any other make of spar varnish on the market. Upon application by readers of this magazine, the company will send free a stick covered with its varnish which it requests be placed in water, salt or fresh, and left for a week or longer. It is stated that examination will show that even after this severe test the water has not damaged the varnish or spar.

Mr. J. W. Duntley, president of the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., has just returned from his twenty-first trip to England and the continent in the interests of the pneumatic tool business. The popularity of the Chicago Pneumatic Tool Company's product is shown by the fact that nearly all foreign railways have installed these tools in their shops as well as a great many of the larger industrial institutions and commercial ship yards. The company states that about ninety percent of all the pneumatic tools made throughout the United States, Canada, Mexico, England and the continent are of its make.

The Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill., states that the sales of its "Thor" pneumatic tools and appliances show an increase of fifty percent over 1905, and that on account of the rapidly increasing demand for its products, the company has been obliged to purchase a large four story brick building adjoining its plant at Aurora, Ill., which will furnish approximately one hundred thousand square feet additional floor space, in which will shortly be installed about $65,000 worth of additional machinery. These improvements are expected to double the output of the plant. The Board of Directors of the Independent Pneumatic Tool Company has just declared the regular quarterly dividend of three percent.

A good word for Albany grease. Mr. H. Schroeder, chief engineer of the Consumers Company, Chicago, Ill., writes Adam Cook's Sons, 313 West street, New York City, manufacturers of Albany grease, as follows: "Regarding your Albany grease there is nothing on the market that will beat it. I have had experience in using Albany grease for the last thirteen years, six years as an oiler, five years as an assistant engineer and two years as chief engineer. My predecessors had tried all kinds of grease, but after a few day's trial turned back to the old stand-by "Albany grease." I myself tried a well known grease about six months and got the same results. I even took a sample of your grease and a sample of three other makes of grease to our chemist to make a chemical test, also acid test, and I was surprised to see what acid the other greases contained compared with Albany grease. I am now using about five hundred pounds of your grease a month."

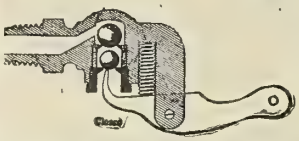


THE NICHOLSON SHIP LOG

NOT a luxury but a necessity on every ship. Be up-to-date and equip your vessels with this excellent device. The exact speed of the moment constantly before you and recorded on a chart. Also the distance run shown on a counter. Let us send you our catalogue.

NICHOLSON SHIP LOG CO., Cleveland, Ohio

THE AETNA GAUGE COCK



SUITABLE FOR ANY PRESSURE

HAS DOUBLE BALL VALVE MADE OF BRONZE

MANUFACTURED BY

GEO. W. NEFF

42 BROADWAY NEW YORK, U. S. A.

AJAX MANGANESE BRONZE

The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality. It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

THE AJAX METAL COMPANY,

PHILADELPHIA, PA. -:- BIRMINGHAM, ALA.

Installation of submarine signals.. The Submarine Signal Company, 88 Broad street, Boston, Mass., reports that the United States Navy Department, after testing the company's system on the *Alabama* and *Maine*, has decided to equip almost all of the vessels of the navy with this device.

Gauge mountings and reflex water gauges for marine and stationary boilers, are manufactured by the Jerguson Manufacturing Company, successor to the William T. Bonner Company, 221 Columbus avenue, Boston, Mass. This company makes Freeport blow-off valves, Freeport valves for steam and water, feed water regulators, gauge (try) cocks, water gauge columns, Scotch gauge glasses and gauge protectors.

A new tracing cloth. The American Tracing Cloth Company, 11 Broadway, New York City, is now manufacturing tracing cloth at its plant in Paterson, N. J., by a secret process, and with the aid of especially designed machinery. Heretofore climatic conditions have proved a serious obstacle to the production of this material in the New York district, but means of surmounting this difficulty have been discovered. The new cloth is known as the "Peerless," and the manufacturers will be glad to mail free samples to readers mentioning this magazine.

The White-Forster water tube boilers and feed regulators, manufactured by J. Samuel White, Limited, East Cowes, Isle of Wight, England, are stated by the manufacturer to be of great simplicity of construction, easily repaired and of maximum efficiency. All tubes are of the same curvature, reducing spare gear to a minimum. The tubes may be easily cleaned inside and out, and may be removed and replaced without disturbing any other part of the boiler pipes or fittings.

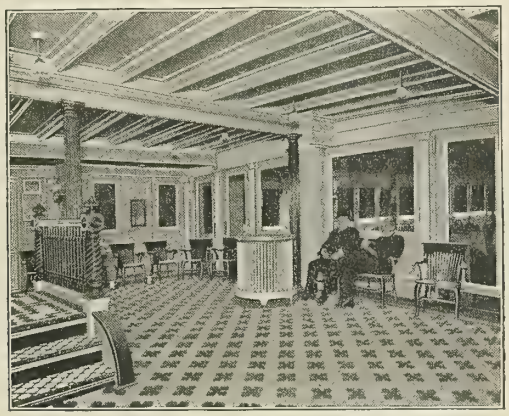
"Tauril," according to the manufacturers, Ferguson & Timpson, 6 Trinity Square, London, England, is the toughest and best jointing material in the world. It is claimed to be acid proof and not to be affected by a steam pressure of 572 degrees. It will stand a pressure of 32,953 pounds and has a tensile strength of 6,863 pounds per square inch. It has been used with great success in numerous refrigerating plants, and is said to be especially adapted for long lengths of steam piping to auxiliary machinery.

The DuBois Iron Works, DuBois, Pa., has taken over the entire business of the Lazier Gas Engine Company, Buffalo, N. Y. The new company is capitalized at $1,000,000, and states that while the general appearance of the engine to be manufactured may look the same, numerous improvements and changes will be made which will put DuBois engines far in advance.

The B. F. Sturtevant Co., Hyde Park, Mass., has issued two very interesting Bulletins, No. 141 and No. 142, descriptive of its vertical enclosed compound engines and of the generating sets equipped with these engines. These sets which were originally designed to fill the rigid specifications of the United States Navy Department, are built in sizes ranging from 17½ to 100 K. W.

Vessels classed and rated by the American Bureau of Shipping in the "Record of American and Foreign Shipping": American six-masted schooner *Alice M. Lawrence*, British schooner *Fauna*, British schooner *Flora M.*, American three-masted schooner *Olga*, American three-masted schooner *Robert Graham Dun*, American three-masted schooner *S. G. Haskell*, British three-masted schooner *Keewaydin*, and British three-masted schooner *Reliance*.

Edwisan Lamps. It is reported that as the result of tests made at the Westminster Electrical Testing Laboratory the "Royal Edwisan" lamp came out at the top of the list. Another series of tests has lately been carried out by the same authority with 16 candle power 200 volt lamps of nearly a dozen different makes purchased without the knowledge of the makers. The "Royal Edwisan" lamps again showed the best efficiency. Starting at less than 3.3 watts per candle, they finished at slightly less than 4.0 watts per candle at the end of five hundred hours, the average consumption being little more than 3½ watts per candle for the whole period. The candle power of any of the lamps at the end of the test was within ¼ candle power of the mean; that is within 8 percent of the rated candle power. This is the best result as regards candle power and economy in energy consumption. The average candle power throughout was well sustained and the whole of the lamps easily complied with the New Standard Specification except in initial candle power which was rather high. The total watts at start and finish were less than 60.



As laid by us on the Quarter Deck, Dining Room, Stairway, etc., of the Steamer "City of Troy."

We are the original manufacturers and patentees of **Interlocking Rubber Tiling.** Careful tests made after years of service and under the most trying conditions prove the superiority of the compound and the perfection of our interlocking features, which unite the tile into a smooth, unbroken sheet of rubber, unlimited in area, preventing separation or coming up; lending itself more readily to architectural characters and affording a wider range of designs. An ideal floor covering for Steamships, Yachts, etc. It stands the constant straining and racking without cracking or separating.

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ST. LOUIS, MO., 218-220 Chestnut Street
BALTIMORE, MD., 114 W. Baltimore Street
SPOKANE, WASH., 163 South Lincoln Street
LONDON, ENGLAND, 58 Holborn Viaduct

Erratum. In the advertisement which appeared in our last issue, of the National Association of Engine and Boat Manufacturers, through an error the name of the Hunter-Wechler Boat Co. of McHenry, Ill., was omitted from the list of Active members. The Hunter-Wechler Boat Co. is a member of the Association.

Metallic life boats, life rafts, Engelhardt collapsible life boats, and wooden and iron boats of every description, are made by the Lane & DeGroot Company, 305 Vernon avenue, Long Island City, N. Y. The company solicits correspondence with users of every sort of life boat or raft, in any part of the world.

Enormous moorings for the large Cunarders. The Cunard Steamship Company, Limited, Liverpool, England, has placed an order with Brown, Lenox & Company, Pontypridd, England, for more than two hundred tons of cables, which will be the heaviest ever made. The mooring anchors will be of the Lenox type, and will weigh twelve tons each.

From the Great Lakes to Puget Sound, around Cape Horn, with Roberts water tube boilers. The steamers *Iroquois* and *Chippewa*, which have recently made this trip of nearly twenty-five thousand miles, are equipped with boilers made by the Roberts Safety Water Tube Boiler Company, 39 Cortlandt street, New York City.

The Western Electric Company, 259 South Clinton street, Chicago, Ill., states that it has heretofore been generally known merely as a manufacturer of telephone equipment, but that since the completion of its new plant at Hawthorne, Ill., an illustrated booklet describing which the company is mailing, it is now in position to build heavy power apparatus and switch boards.

The book departments of the *Engineering & Mining Journal, Power*, and the *American Machinist* have been consolidated, and the business will hereafter be transacted under the name of the "Hill Publishing Company, Book Department," whose office is at 505 Pearl street, New York City. The company has just issued a 168-page catalogue of its books.

HELP AND SITUATION ADVERTISEMENTS.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word. No advertisement will be inserted for less than 75 cents (3 shillings) for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Second-Hand Roberts Boiler Wanted. We are in the market for a second-hand Roberts water tube boiler, 25 to 50 horse-power. Please state condition and price. Address: Onset Water Company, Onset, Mass.

First Class General Draughtsman for steel hull and engine work desires to change position. Address *Hull Draughtsman*, care International Marine Engineering, 17 Battery Place, New York.

Removal Notice. The Kobbe Company, publisher of "Compressed Air," has removed its offices from 90 West Broadway to 108 Fulton street, New York City.

The B. F. Sturtevant Co., Hyde Park, Mass., reports recent sales of generating sets with enclosed forced lubrication engines as follows: Hudson Companies, Jersey City, N. J.; American Milling Co., Linden, Ind.; Maryland Steel Co., Sparrows Point, Md.; The Cox & Sons Co., Swedesboro, N. J.; C. N. O. & T. P. Ry. Co., Lexington, Ky.; Bristol Water Works, Bristol, Pa.; and for the Panama Dredges No. 76 and No. 77.

Mietz & Weiss Engines in France. The commission appointed by the French government to look into petroleum (petrole lampant) engines for the French navy has completed its tests, and has recommended the Mietz & Weiss system, of the August Mietz Iron Foundry & Machine Works, 128 Mott street, New York City. The commission has purchased the twenty-two horse power marine engine of this make which it had under test.

J. & E. HALL Ltd.

(ESTABLISHED 1785)

23, St. Swithin's Lane, London, E.C., and Dartford Ironworks, Kent, England,

MAKERS OF

REFRIGERATING MACHINERY

ON THE

CARBONIC ANHYDRIDE (CO_2) SYSTEM.

Originally introduced by them into England.

MACHINES OCCUPYING MINIMUM SPACE FOR BOTH LAND AND MARINE INSTALLATIONS.

FULL PARTICULARS ON APPLICATION.

WHERE TO BUY

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Vest-pocket size, 5 x 2 5/8

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Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
12 West 31st Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

GREAT BRITAIN.

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
St. Nicholas Building, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.,
58 Romford Road, Stratford, London, E.

GERMANY.

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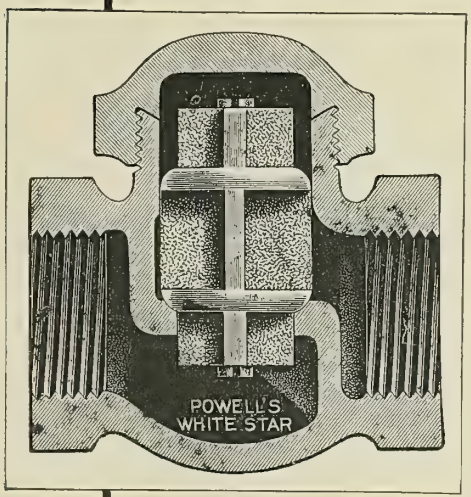
"WHITE STAR"
Reversible and Re-Grinding
CHECK VALVE



Disks in one piece with double seating heads.

Both ends made to gauge.

Economical because disk is reversible and saves putting in a new valve.

Will withstand a temperature of 2,000 degrees.

Simple and convenient—Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

THE WM. POWELL CO.
Everything in the steam line for the boiler and engine room
CINCINNATI, OHIO, U. S. A.
New York Depots, 51 Cliff St. Philadelphia Depot, 515 Arch St.
Corner High and Congress Streets, Boston

J. W. Brooke & Company, Limited, Lowestoft, England, state that among the numbers of foreign orders the company has recently received are two for complete motor boats for the Argentine Republic.

The Philadelphia Iron Works, manufacturer of steam boilers and plate metal construction, has removed its offices to 418 North 18th street, Philadelphia, Pa. The company has recently increased its plant and facilities for producing all kinds of plate metal construction.

A soluble metal boiler compound is made by the New Era Manufacturing Company, Kalamazoo, Mich., which the maker states "positively prevents pitting and keeps the boiler clean and free from scale. It is safe, efficient and economical." The company solicits correspondence from all interested.

The Piqua Blower Company, Piqua, Ohio, has been incorporated with a capital stock of $50,000 to take over the interests of the Piqua Foundry & Machine Company, and will make a specialty of the manufacture of positive blowers and gas exhausters.

The B. F. Sturtevant Co., Hyde Park, Mass., is furnishing a full complement of stationary forges, blowers, etc., for the equipment of forge shops for the Standard Steel Car Co., Hammond, Ind., Sydney Steel Scraper Co., Sydney, Ohio, and Pond & Bond, Chicago, Ill. Individual stationary forges are being furnished for steamers *Birmingham* and *Salem*.

Condensers, suction valveless air pumps, single duplex and triplex vertical air pumps, feed water heaters, fire pumps, bilge pumps and boiler feed pumps are advertised by the C. H. Wheeler Manufacturing Company, Philadelphia, Pa. Those interested should send for a free catalogue.

New detent motion for the American-Thompson improved indicator.—The American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass., manufacturer of the American-Thompson indicator, states that the greatest improvement ever added to the steam engine indicator is the new improved detent motion which this company uses. This attachment, so the company states, makes the indicator particularly adapted to high-speed marine and stationary steam engines and gasoline engines. With this attachment it is possible to connect the indicator to high-speed reducing motions and stop the drum of the indicator without unhooking the card or stopping the engine.

Boats for inland lakes and rivers.—Many inland lakes and rivers are so situated that although well built steamboats are greatly needed and would prove a source of considerable profit if of the right design, it is impossible to deliver them, except in sections and parts, or on some similar basis. This state of affairs justifies the careful attention of those experienced in marine design and construction, and having the best facilities for such work. For these conditions is recommended the all-steel frame work for wood planked boat hulls of moderate size such as are made by the Marine Iron Works, Chicago, Ill. This method produces a substantial boat, and one that can readily be transported in small packages.

Engines for marine auxiliaries are advertised by the Boston Steam Engine Company, 246 Summer street, Boston, Mass. The company states that its engines are of high speed, are light and easily overhauled, combining the advantages of lightness and accessibility of the open type with the neatness and freedom from dirt of the heavy cast iron engine. The company's designing engineer has had many years' experience with marine engines. The entire enclosing of all of the working parts, valve gears, as well as reciprocating parts in a double casing of sheet iron, the company states is a great advantage. There is a minimum number of working parts which might under any conditions work loose while all adjustments of bearings are easily reached. The company states that its engine at 100 pounds of steam runs electric generators ranging from 1 to 25 K. W. in capacity.

Boat builders should send to Department 10 of the Adams & Elting Company, Chicago, Ill., for information regarding this company's paint and varnish remover and tinted enamels. The company states that its paint and varnish remover takes off old finish-paint shellac or varnish from any surface in a few minutes, and that it does not raise the grain or injure the finest veneer; accomplishing in ten minutes what could not be done in hours with the torch or scraper. The company's enamels are especially prepared elastic enamels that are said to stand the hardest strain without cracking or marring and are not affected by moisture or atmospheric conditions. They may be cleaned off with a damp rag. The Adams & Elting white marine paint is a water-proof paint, and the company states that it will not crack or scale. This company also makes copper paint, brass polish, crack fillers, mission finishes and everything else in the marine paint line.

The Reason your dealer tries to sell you a "JUST AS GOOD" as

RAINBOW PACKING

is because his profits are 50 per cent. greater on the imitation kind.

THE ENGINEER'S FRIEND

¶ State clearly on your packing orders RAINBOW and be sure you get the genuine. Look for the trade-mark, three rows of diamonds in black, in each one of which occurs the word RAINBOW.

¶ RAINBOW PACKING is the most satisfactory packing ever made. Can't blow RAINBOW out. Makes a perfectly tight joint for air, steam, hot or cold water, gas, oil or ammonia.

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Cor. Ninth and Cary Sts., Richmond, Va.
16 & 18 S. Capital Ave., Indianapolis, Ind.
1221-1223 Union Ave., Kansas City, Mo.
709-711 Austin Ave., Waco, Tex.
51-55 N. College St., Charlotte, N. C.
634 Smithfield St., Pittsburg, Pa.

TRADE PUBLICATIONS.

"Valuable Information for Superintendents and Foundry Foremen" is the title of a booklet just issued by the New Era Manufacturing Company, Kalamazoo, Mich., a free copy of which will be sent to readers who will mention International Marine Engineering. This booklet is devoted to the subject of porous castings; their cause, and how to counterbalance or neutralize them, thereby making it possible to avoid the loss incident to this common and vexing problem, which is sure to disturb every foundryman at some period of his experience. The pages of this booklet give a definité explanation of the cause which produces blow-holes or pores in the castings and also the means to control this cause.

Automatic regulating devices for steam, electric and power pumps are described and illustrated in a very complete catalogue of 56 pages published by the Mason Regulator Company, Boston, Mass. Regarding the Mason steam pump speed governor, the catalogue states that it is to the direct acting steam pump what the ordinary ball governor is to the steam engine. It derives its motion from some reciprocating part of the pump and controls a balanced valve placed in the steam pipe, thereby exactly regulating the amount of steam to the requirements of the pump and automatically maintaining a uniform speed, regardless of any variation of steam or load. By the use of a key the speed of the pump can be changed if desired, while in motion. These governors are extensively used on direct acting steam pumps both simple and duplex, also on all classes of fly-wheel pumps including vacuum pumps, air compressors and ice machines. A full technical description is given in the catalogue of this governor together with directions for attaching, which are illustrated by many half tones and diagrams. Among the other articles described in the catalogue are by-pass water relief valves for power and electric pumps, steam pump pressure regulators of various types, the Mason steam pump gravity tank regulator, the Mason steam vacuum pump regulator and a steam driven blowing engine regulator for delicate air compressors, besides many other controlling devices. The Mason appliances represent the experience of a quarter of a century.

The latest iron and steel stock list issued by the Cincinnati Iron Store Company, Cincinnati, Ohio, will be sent free to any reader mentioning this magazine.

Economy in Operation of Mechanical Draft. In his work on mechanical draft J. H. Kinealy states that "it is in the economy in the operation of the plant that a mechanical draft apparatus really makes its great showing. In the case of a chimney the draft depends upon the height of the chimney, the temperature of the hot gases inside, and the temperature and condition of the air outside of the chimney, while in the case of a mechanical draft apparatus it depends only upon the power of the motor to run the fan; if a high draft is desired it is run faster and if a low draft is desired it is slowed down. Unless the chimney be built very high the draft produced by it cannot be very great and the range of draft therefore cannot be great; further, the draft can only obtain its maximum when the fire in the furnace is hot, so as to make the gases in the chimney have a high temperature. In the case of a mechanical draft apparatus the draft can be increased by speeding up the fan, without regard to the condition of the fire in the furnace. In the case of a chimney the draft can be increased only as the increase in the combustion takes place, and this combustion is due to the draft. The two are dependent upon one another in such a way that it is quite impossible to increase either suddenly. While in the case of the mechanical draft it is possible to suddenly increase the draft irrespective of the condition of either the fire or the draft previously, and this increase in draft is at once followed by an increase in the combustion in the furnace. Again, the temperature of the air outside may have a material effect on the draft of a chimney, while it cannot affect at all the draft of a mechanical draft apparatus. And further, the higher draft that can be created by means of the mechanical draft apparatus enables a poorer grade of coal to be used than could be burned with the chimney draft, and this usually results in a marked reduction in the running expense. In the case of a high draft the rate of combustion is higher than in the case of a low, and this results in a hotter fire and therefore for some fuels a more perfect combustion of the fuel in the furnace. It has also been found that less air is required for the complete combustion of a pound of coal when the draft is high than when it low, and this means, therefore, an economy for the higher draft because of the smaller amount of heat carried away by the hot gases."

C. E. HEINKE & CO.

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Manufacturers of Every Description of

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For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries. - - -

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

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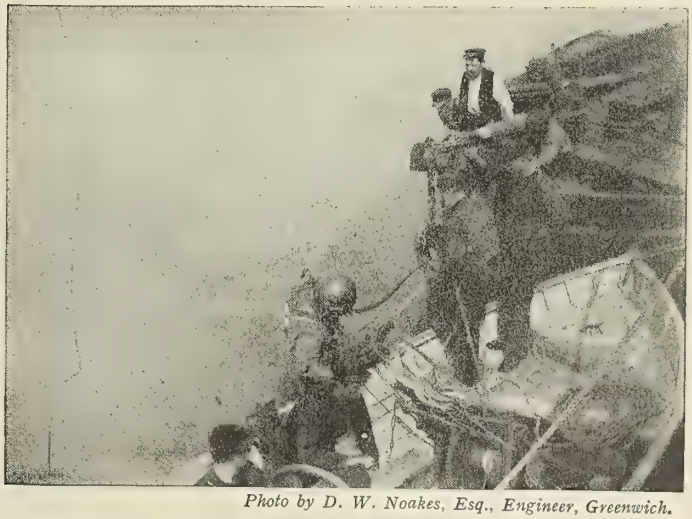


Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

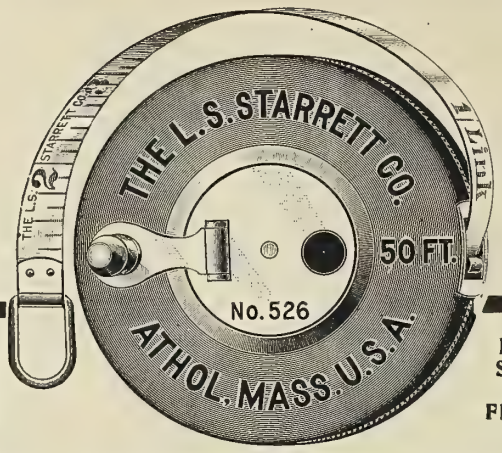
All our readers interested in hot water regulators should write to the Hohmann & Maurer Manufacturing Company, Rochester, N. Y., for a copy of the company's latest hot water regulator catalogue. The company, besides its well-known line of thermometers, both for marine and land service, manufactures temperature and pressure regulators for all kinds of industrial purposes, damper regulators, blower engine regulators, etc. The company has acquired control of the patents covering the D. & R. temperature and pressure regulators, which it is stated embody the best known principles and mechanisms in such devices.

Vertical self-oiling steam engines are described in illustrated catalogue 206 published by the American Blower Company, Detroit, Mich. The company states that it was with the purpose of producing a line of small engines as dependable as the best large automatic engines that the "ABC" Type A and Type E vertical enclosed self-oiling engines were designed. In these engines are combined graceful lines, a novel oiling system, and the very best materials. The company states that they will run continuously three months or more, requiring absolutely no attention further than to fill the sight feed cylinder lubricator. "Nearly all of them have run five months before any oil was added to the initial supply and some have run as long as twenty-four months with the addition of less than five gallons of oil and only one adjustment."

Pneumatic tools and appliances are illustrated in a handsome 42-page catalogue issued by the Globe Pneumatic Engineering Company, Ltd., 150 Queen Victoria street, London, E. C., a free copy of which will be forwarded to readers mentioning this magazine. The company invites the attention of ship builders, engineers, contractors and others to the Tierney pneumatic tool for which it claims the following advantages in comparison with other pneumatic tools: "Their working capacity with a less consumption of air is greater. They are more powerful, and do their work more effectively. In the hammers, vibration is much reduced, and on account of their greater simplicity, these tools have a much longer life than those of any other design." The tools sold by the Globe Pneumatic Engineering Company are all manufactured for them by Sir W. G. Armstrong, Whitworth & Company, Ltd.

Charts, works on navigation and nautical instruments are the subject of the 1907 catalogue issued by Imray, Laurie, Norie & Wilson, Ltd., 156 Minories, London, E. This catalogue states that at the present time many hydrographical surveys are being carried on not only by our own Government but by the Governments of Foreign Countries, and it may be expected that the intelligence and skill of surveyors furnished with superior instruments will materially extend our knowledge of important coasts and seas, and that it has always been the publisher's aim to keep pace with the rapid advance of hydrographical science and to introduce to the nautical world the most recent advances and improvements in this department. Everything new and valuable to the navigator is immediately embodied in these charts and sailing directories, in order that the high character of the firm's works may be fully maintained.

"Century Asbestos Shingles" are described and illustrated in a 24-page booklet issued by Wendell & MacDuffie, 26 Cortlandt street, New York City. It describes this company's asbestos and cement fire-proof materials, including reinforced asbestos corrugated sheathing, which is a strong and durable composition of asbestos and cement compressed under heavy pressure and reinforced with ¾ inch woven wire mesh, this material being used as a substitute for corrugated iron; the advantages claimed being lightness, longevity, and the fact that it requires no painting. Century asbestos shingles, which are made up in various colors, are tabulated in this book according to size, numbers, weights and gauges, the prices being given in detail. A supplement of the catalogue is issued giving the drawings and dimensions of the different sizes of slate and describing the various methods of laying. The cover of the supplement is made up of three exact reproductions in the three color process of different colored slates both laid and inlaid.



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FINE MECHANICAL TOOLS

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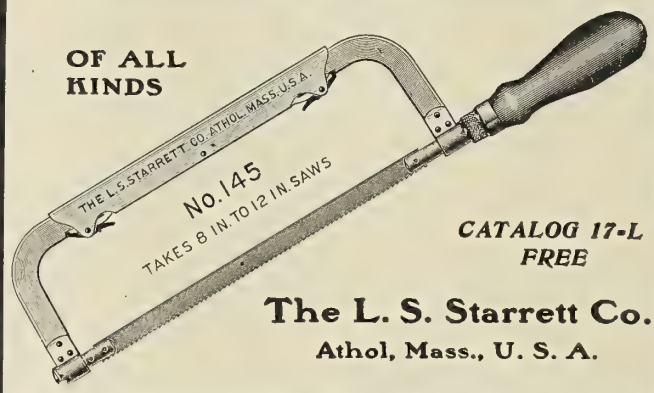

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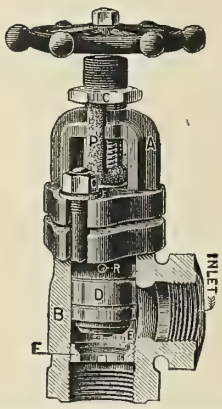
cast or stamped on Steam Brass Goods is a public guarantee that it is all right and warranted. Have your requisitions call for the POWELL make and get the best.



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built on correct principles. Has outside screw and yoke top and the POWELL packing gland.

Seat is removable and renewable.

Disk is regrindable and reversible—having two faces to wear, besides renewable.

Seat and disk made of our incomparable wearing metal Powelium BRONZE, WHITE as SILVER.

Sure to give perfect satisfaction.

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USE No. 1 for Yachts' Decks

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SEND FOR SAMPLES, SPECIMENS, CIRCULARS, ETC.

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Copy 75-C FREE

This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks" discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.

Jersey City, N. J.

Roller tube expanders—self-feeding and self-releasing, are described in an illustrated folder issued by W. H. Nicholson & Company, Wilkes-Barre, Pa. This expander may be operated by power or by hand. It is self-feeding and requires no driving. It is self-releasing by reversing the rotation of the arbor. The folder states that it impossible with this expander to over-roll and ruin a tube; that it rolls the tube tighter than any other expander on the market, and with less power, that it has six rollers, giving it twice the bearing in the tubes of that of any other expander, and that it is made from the best hardened tool steel.

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Engineers' and Steam Fitters' Tools and Supplies

Boiler Room and Engine Fittings

VALVES OF ALL KINDS

GENUINE STILLSON WRENCHES

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THERE IS ONE AND ONLY ONE GENUINE STILLSON WRENCH
AND THAT IS MADE BY THE WALWORTH MFG. CO. BOSTON, U.S.A.

TOOL STEEL THROUGHOUT
IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS
IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS
AUTOMOBILE
TRADE MARK
STILLSON TRADE MARK
STILLSON TRADE MARK
LOOK FOR SPEAR ON UPPER JAW

WALWORTH MFG. CO. Sole Manufacturers, BOSTON, U.S.A.
FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

The American Wire Brush Company, 25 Broad street, New York City, is distributing catalogues describing and illustrating flexible self-cleaning brushes. The uses to which this company's brushes are put are stated to be many. Among those mentioned are tube cleaning on marine and stationary boilers and locomotives. The company makes special brushes for curved tubes and for special duty on apparatus. A broom shaped brush is made for the cleaning of internal boiler flues, furnaces, etc.

High grade boats are described and illustrated in a catalogue issued by the Pope Manufacturing & Construction Company, Fond du Lac, Wis. The company states that it employs only the best known naval architects to design its boats, and that its construction is of the very highest class. One of the illustrations is that of the cabin cruiser *Queen of the Lake* which it is stated is the finest finished and most completely equipped boat ever built in the West. Every one interested in the subject of boats of any sort should send for a free copy of this catalogue.

Catalogue H-36 describes Class H air and gas compressors made by the Ingersoll-Rand Company, 11 Broadway, New York City. These machines are of the duplex steam driven type with sub-base. The Ingersoll-Rand Company builds its machine parts in quantities, and it is seldom that any wearing part cannot be shipped at once from stock at factory or branch; while so rigid is the system of inspection at the shop that the company states such parts are sure to fit in place.

Non-conducting coverings and insulations for ships, etc., are described and illustrated in a pamphlet issued by S. T. Taylor & Sons, Scotswood-on-Tyne. The pamphlet states that for more than a quarter of a century the firm's leading line has been "Tynos" non-conducting coverings for pumps, pipes and all heated surfaces, and that the company's coverings are used in the boilers of the most important steamship lines throughout the world as well as having been supplied for vessels in the Japanese, Austrian, Turkish and British navies.

"Introducing You to the Wilkinson Steam Turbine" is the title of a booklet issued by the Wilkinson Steam Turbine Company, Providence, R. I. The company states "we believe we have the proper foundations upon which the steam turbine must rest. We have proved we have a turbine so simple, so free from delicate points, so efficient, that we are justified in believing our superstructure is worthy the foundation." The company extends an invitation to engineers to visit its Corliss works in Providence, and guarantees that all visitors will be interested.

Asbestos roofing slates, shingles and sheathings are described in a fully illustrated catalogue of 64 pages issued by Keasbey & Mattison Company, Ambler, Pa. This company's asbestos shingles and asbestos building lumber, which are especially suited for fireproofing on board ship, are stated to be fireproof and not affected by continuous moisture or frost, or subject to deterioration by the elements in any way. Free samples of this company's products will be forwarded upon application to readers mentioning this magazine.

The Thor hose coupler for compressed air or water, is described in a folder issued by the Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill. The folder states that this coupler is absolutely tight; that the gaskets cannot blow or fall out; that it is made of tough bronze and cannot corrode; that it is coupled by a third turn of the hose; that it is made in such a manner that small hose can be coupled to large hose without the use of reducers; and it is claimed that it may be connected in one tenth-of the time required for ordinary couplers.

The Submarine Signal Company, Boston, Mass., is issuing frequent bulletins telling about reports from various steamships that have heard this company's submarine bells at a distance of several miles. For instance, the *America* of the Hamburg-American Line recently reported hearing the submarine bell on the Elbe lightship at a distance of 6½ miles. The steamships *Caronia, Baltic, Majestic* and many others have had similar experiences. Any one interested in the subject of submarine signalling should send for these bulletins which will be sent free to readers mentioning this magazine.

C. G. HUSSEY & CO.

PITTSBURG, PA

MANUFACTURERS OF

SHEET COPPER

Corrugated Gaskets, Copper Nails and Tacks

"The Penberthy Engineer and Fireman" is a monthly magazine published by the Penberthy Injector Company, Detroit, Mich. The subscription price is twenty-five cents per year and a free copy will be sent to any reader who will mention this magazine.

Users of asbestos packings, sheetings, jointings, etc., should send to the United Asbestos Company, Limited, Dock House, Billiter street, London, E. C., for a copy of the catalogue which this company will send free upon request. This catalogue contains 214 pages, and is cloth bound. It illustrates many asbestos specialties which will appeal to all of our readers who have to do with steam plants.

The February number of "Graphite," published by the Joseph Dixon Crucible Company, Jersey City, N. J., contains among other articles of interest to engineers, a paper entitled "An Electric Driven Receiver Pump" by W. H. Wakeman. Every one of our readers who will mention this magazine will be put upon the free mailing list of "Graphite."

"Eureka" packing is the subject of a folder distributed by James L. Robertson & Sons, 48 Warren street, New York City. The company makes seven kinds of "Eureka" packings, and states that its slogan is "the best goods for the least money." One of these seven kinds, the firm states, is suitable for any duty into which packing enters, and all of them carry the red diamond trade mark.

Oriole marine engines are described and illustrated in a catalogue issued by the Page Engineering Company, Baltimore, Md. The catalogue states that the Oriole engine is guaranteed to develop its full rating in actual brake horsepower and against defective material or workmanship for one year. The company will furnish free of charge, express or freight prepaid, new parts to replace the broken one, on evidence of faulty material or workmanship.

The Enock system of ice making and refrigeration for passenger and cargo steamers, steam trawlers, yachts, etc., is described and illustrated in circular C issued by A. G. Enock & Company, Ltd., refrigerating engineers, Thane Works, Seven Sisters Road, Holloway, London, N. A free copy of this catalogue and of more complete catalogues will be sent upon application, to readers mentioning this magazine. The manufacturer states that some of the advantages of its system of refrigeration are perfect safety, non-escape of gas, non-clearance in compressor, automatic lubrication, silent action, small space occupied, and great reliability.

Kerr Steam Turbine Blowers are the subject of Bulletin No. 2, issued by the Kerr Turbine Company, Wellsville, N. Y. This company's turbine uses the principle of the Pelton water wheel. The buckets of the Kerr turbine, like the buckets of the Pelton water wheel, are of the double cup variety, but in the turbine they are made of a form suitable for the use of steam instead of water. This form of bucket, by producing a nearly complete reversal in direction of the jet of steam, is stated to give a very high efficiency in the transformation of the velocity energy of the jet into mechanical energy.

The C. H. Wheeler Manufacturing Company, Philadelphia, Pa., has issued a circular describing the C. H. Wheeler underwriter fire pump and the difference between the "National Standard" and the "Trade Pump." The same circular describes the C. H. Wheeler auxiliary underwriter fire pump, which is stated to be practically a new pump designed by this firm. It is approved by and built according to underwriter specifications and recommended by the underwriters for the purpose of automatically keeping a pressure on the fire mains, and at the same time providing a small supply of water until the large pump can be started. The company reports its pump department to be unusually busy at the present time.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

71 BROADWAY NEW YORK

Free, Our Practical Pamphlets :

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

The electric lighting devices made by the Benjamin Electric Manufacturing Company, Chicago, Ill., are fully illustrated and described in a catalogue issued in Spanish, a free copy of which will be sent to any reader mentioning International Marine Engineering.

Northern cranes are the subject of booklet No. 22 issued by the Northern Engineering Works, Detroit, Mich. The company states that this booklet is merely a brief reminder and that it publishes larger catalogues of cranes and hoists which describe more fully these modern labor saving appliances and that it will be pleased to send them free upon request.

Hanna portable screen shakers for foundry use are described in an illustrated folder distributed by the Hanna Engineering Works, 820 Elston avenue, Chicago, Ill. This shaker, it is stated, will screen sand in a far more economical manner than by hand, and it is claimed that it cannot be stalled by overloading, besides being so simple that the commonest laborer can operate it.

Abenaque gas or gasoline driven direct connected compressor outfits are described and illustrated in a pamphlet issued by the Abenaque Machine Works, Westminster Station, Vt. The catalogue states that for bridge erection and smaller structural iron work, its outfit is more serviceable than any other on the market, this being particularly true of work done in outlying districts.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg

Pipe machines of various sorts are described in illustrated folders issued by the Williams Tool Company, Erie, Pa.

The Stickler Weedless Wheel Company, Incorporated, Portage, Wis., is sending out mailing cards calling attention to its propeller wheel, which the company states is guaranteed to run through the worst tangle of weeds without winding.

Free catalogues describing and illustrating wood working machinery of every description, will be sent to readers who will mention International Marine Engineering, by the H. B. Smith Machine Company, Smithville, N. J.

Asbestos-cement shingles, slates or sheathing, made of asbestos and Portland cement, are described in illustrated catalogue "Everlasting," issued by Wendell & MacDuffie, 26 Cortlandt street, New York City.

Rand Rock Drills are the subject of illustrated catalogue No. 46 issued by the Ingersoll-Rand Company, 11 Broadway, New York City. We are told that this company has built eighty thousand rock drills and that today probably ninety percent of all drills in use are of its make.

The latest number of the "Valve World" issued by Crane Company, Chicago, Ill., contains Chapter IX of the "Evolution of Cheap Iron and Steel" and deals with the part James Watt and the steam engine had in this evolution. Every one of our readers who will mention this magazine will be put upon the free mailing list of the "Valve World."

The Elbridge Type T Dynamo for gas engine ignition, storage battery charging, electric lighting, or all three combined, is one of the numerous marine specialties handled by George H. Terry Company, 92 Chambers street, New York City, agents for the Lamb marine engine and dealers in marine hardware of every description.

An illustrated catalogue of shipping tackle will be sent free to readers mentioning this magazine, by the Cradley Ship Tackle Company, Cradley Heath. The sizes, dimensions and illustrations contained in the catalogue are given as an approximate guide for buyers and further particulars will be sent upon application.

BUSINESS NOTES.

Stephen P. M. Tasker whose professional card appears in this issue, has opened an office at 310 Pennsylvania Building, Philadelphia, Pa., where he will be prepared to do a general line of engineering, drafting, tests, reports, surveys, patents worked up, yacht and launch designs, specifications, and construction superintending. Mr. Tasker, who is a member of the well known Philadelphia engineering family of the name, holds a license for ocean steamers, and has had twelve years' experience with the Cramps Ship Building Co., was chief draftsman at the Norfolk Navy Yard and recently with the Inspector of Machinery, U. S. N.

The Ferro auto-marine engine at the Motor Boat Show. The exhibition of the gasoline engines made by the Ferro Machine & Foundry Company, 127 Wade Building, Cleveland, Ohio, at the exhibition of the National Association of Engine and Boat Manufacturers at Madison Square Garden, New York City, in February, attracted much attention. The company states that: "So fine is the core work and quality of iron used in these wedge shaped cylinder castings, that it is possible to saw a section out at any point and find the thickness of jacket and wall alike. The actual piece taken out, free and sound as its parent, lay near by, and it was necessary to chain it fast to prevent enthusiastic motor "cranks" from borrowing it. Such close grained, elastic and tough material is produced by no other plant in America. Our foundry department is reputed to be supplying more high grade castings to the leading automobile concerns than any outside of France, and has proven its ability to beat the Frenchmen at their own game. The cylinders are removable without disturbing either the adjustable bearings or the other cylinders, an unfailing supply of oil under pressure is fed by a separate pipe direct to each bearing, and an all-bronze timer with each rubbing contact reversible for wear together with a new "Marine Service Type" of carburetor with compound throttle, are some of the Ferro features which are clearly explained in our catalog, but need to be seen to be appreciated. Upwards of seven hundred men are employed by us at our Cleveland, Ohio, factory, and offices and branch at 79 Cortlandt street, New York City."

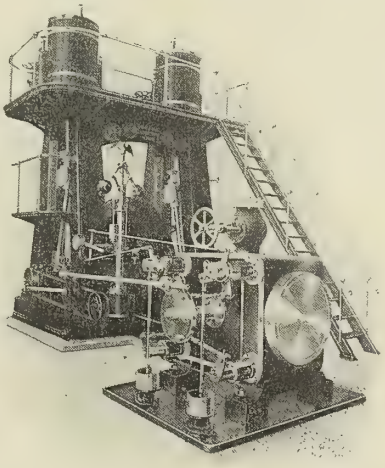
REFRIGERATING AND ICE MAKING MACHINERY

ECONOMICAL

STRONG MATERIALS

BEST WORKMANSHIP

HIGHEST EFFICIENCY



MAXIMUM EFFICIENCY FOR MINIMUM OPERATING AND REPAIR EXPENSE GUARANTEED

"Great Lakes" Refrigerating Machine
Write for Catalogue "B"

GREAT LAKES ENGINEERING WORKS
DETROIT MICHIGAN

ANTONIO C. PESSANO, President and Gen'l Manager
GEORGE H. RUSSEL, Vice-President
JOHN R. RUSSEL, Secretary and Treasurer

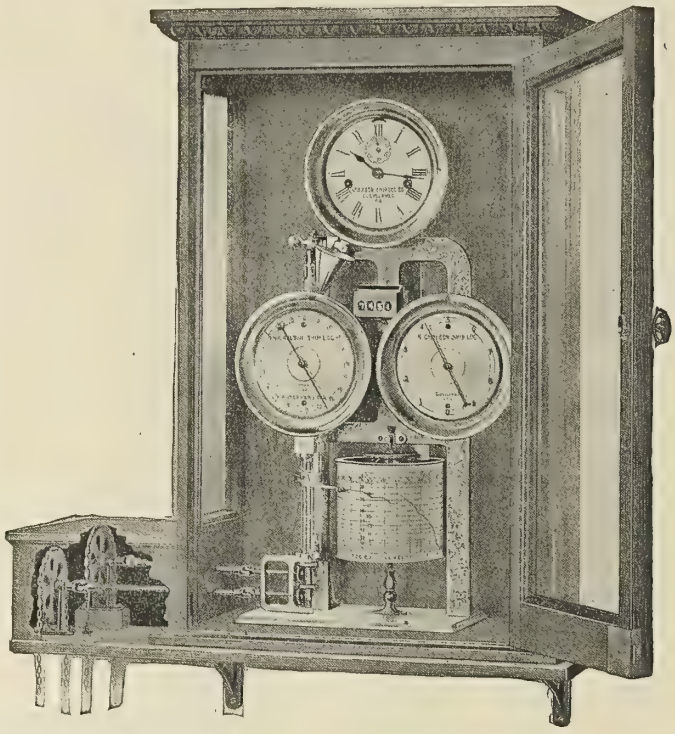
Semi-Centennial of the American Ship Windlass Company. The American Ship Windlass Company, Providence, R. I., whose advertisement appears in this issue of International Marine Engineering, has been making auxiliary machinery for ships for fifty years. The company states that it has kept "an anchor to windward" for more than 1,500 ships, and that no captain ever feels uneasy about his windlass gear if it is made by the American Ship Windlass Company, which also makes towing machines, windlasses, capstans, hoisters and anchors. The towing machines made by this company were used to tow the dry dock Dewey to the Philippines, and there are more than one hundred and fifty of this make in use.

Steam Boilers Flue Cleaners on Approval. The Tornado boiler flue cleaner, made by the Paul B. Huyette Company, 1225 Betz Building, Philadelphia, Pa., will be sent on approval to readers who will mention this magazine. This device has been designed with a view of eliminating objectional features found in cleaners, and the company is so sure that it will do the work claimed for it that it will send machines on approval. In ordering, the exact inside diameter of the tubes should be stated, and the distance from end of fire box to outside fire door if for vertical boilers, and the height from the top of the fire door to the flue sheet.

The Power Specialty Company, 111 Broadway, New York City, manufacturer of Foster superheaters and superheated steam specialties, states that it has recently received orders for Foster superheaters for installation in various types of water tube boilers as follows: Northern Colorado Power Company; Denver Gas & Electric Company; Norwich & Westerly Railroad; Haverhill Electric Company; Electric Company of America; Allis-Chalmers Company; Westinghouse, Church Kerr & Company; Westinghouse Electric & Manufacturing Company, and the Ingersoll-Rand Company; each order being for about five-thousand horsepower.

The development in the covering of steam and fire heated surfaces, which some years ago was a matter of minor importance, is the subject of universal interest at the present time. The H. W. Johns-Manville Company, 100 William street, New York City, states that after years of experimenting it has perfected a material known as "Asbestos Fire Felt" which does not crack, flake or peel off, and which has shown the best results by actual test. Among the many advantages claimed for this material is the great amount of dead air space confined in the material itself. The manner of application is simple. The sheets are strapped to the surface to be covered, with cable wire and are held in place with hexagonal netting. From the surface of these sheets is applied asbestos cement or "J.M." magnesia cement.

"Machine shop practice has been revolutionized in a few years by the introduction of the high grade steel tools known as high speed or air hardening steels. Cutting speeds have been trebled; capacities of machine tools have been more than doubled. High speed steel is now used almost exclusively to make the tools for lathes, planers, boring mills, shapers and other machine tools. The heavy cuts and high speeds demand stronger machine tools. Practically the only important branch of machine shop work, which until recently has not been successfully invaded by high grade steels, is drilling." The Rich flat drill made by the George R. Rich Manufacturing Company, Buchanan, Mich., is a device produced to fill the demand for a cheap drill capable of operating at high speeds and heavy feeds in hard and tough materials.



THE NICHOLSON SHIP LOG

NOT a luxury but a necessity on every ship. Be up-to-date and equip your vessels with this excellent device. The exact speed of the moment constantly before you and recorded on a chart. Also the distance run shown on a counter. Let us send you our catalogue.

NICHOLSON SHIP LOG CO., Cleveland, Ohio

The Stephens-Adamson Manufacturing Company, Aurora, Ill., engineers, founders and machinists, has opened a New York office at 41 Wall street. This company makes a specialty of belt conveyers.

When a concern, after showing a remarkable growth for a number of years, can report anything like an increase in one year of forty percent, there must be some merit in its product and its manner of doing business. The American Blower Company, Detroit, Michigan, is enjoying such a phenomenal growth. A large addition to its steel plate fan shop is just completed and the company's architects are at work on a large addition to the power plant and to the engine construction department. This is the way it has been going for some years. One addition has followed close upon the heels of another until the company now, unfortunately, has no ground left to grow on. But a few years ago the engine department of this company was almost a side line, but now, since putting on the market its new vertical, self-oiling engine, which has met with such success, the engine department is taking first place and is forcing an entire re-arrangement of the plant.

AJAX MANGANESE BRONZE

The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality, It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

THE AJAX METAL COMPANY,

PHILADELPHIA, PA. -:- BIRMINGHAM, ALA.

King Edward's yacht, the *Victoria and Albert*, is to be equipped with submarine receiving apparatus made by the Submarine Signal Company, Boston, Mass., and 29 Charing Cross, Whitehall Building, London. Orders have also been received to equip with this device the American Liners *New York, St. Paul, St. Louis* and *Philadelphia*, and the new turbine steamers *Hartford* and *Yale* of the Metropolitan Line will be fitted with the same system.

The fifth annual report of the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., shows that the company paid $244,351.32 in dividends in 1906, and that the surplus January 1st, 1907, was $878,409.44. This company has acquired the Consolidated Pneumatic Tool Company of London; has organized the Internationale Pressluft & Elektricitats-Gesellschaft, Berlin, and has purchased the Canadian Pneumatic Tool Company, Limited, Montreal, Canada. The excess current assets December 31st, 1906, $1,542,075.99, show an increase of more than $883,000 since the company was organized five years ago.

The annual convention and banquet of the H. W. Johns-Manville Company was held at the headquarters of the company, 100 William street, New York City, the latter part of January. Representatives from the various branch offices and factories in Brooklyn, Milwaukee, West Milwaukee, Hartford, Chicago, Boston, Philadelphia, St. Louis, Pittsburg, Cleveland, San Francisco, Los Angeles, Seattle, Kansas City, Minneapolis, New Orleans, Dallas and Buffalo were represented, and the convention wound up with a banquet at the Waldorf-Astoria on the evening of February 1st.

British Admiralty Report on Submarine Signalling. "If the light vessels around the coast were fitted with submarine bells, it would be possible for ships fitted with the receiving appartus to navigate in fog with almost as great certainity as in clear weather. The saving of time and money brought about to enable ships to reach port instead of being delayed by fog and losing tides, etc., would be very considerable and shipwreck and loss of life would be rendered less frequent." The Submarine signal system referred to is made by the Submarine Signal Company, Boston, Mass., and 29 Charing Cross, Whitehall Building, London.

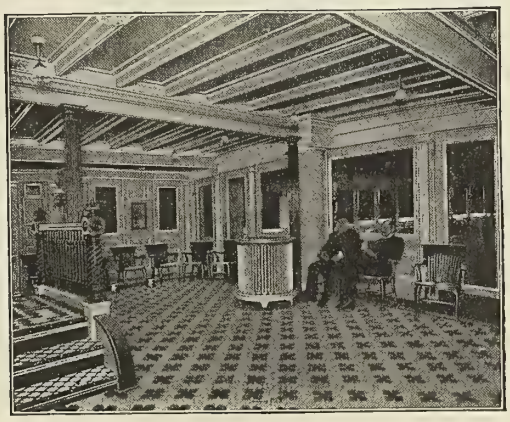
Sales of Generating Sets made by the B. F. Sturtevant Co., Hyde Park, Mass., are reported as follows: Richard Borden Mfg. Co., Fall River, Mass.; Mallory Steamship Co., New York; Faultless Mfg. Co., St. Charles, Ill.; Easton Brass & Machine Works, Easton, Pa., Steamship *Princess Anne;* Roughsedge & Ramsey, Prince Albert, Sask., Can.; and Bowker Construction Co., New York City, for ocean tug *Robert Rogers.*

Patent derrick fittings, enabling heavy ships up to 25 tons to be lifted by the vessel's working derricks, are manufactured by Nicholas E. Porter, 101 Leadenhall street, London, E. C. These fittings combine the derricks on a single pivot or goose neck. They save the cost of a large spar and own for the ship owners the fees paid by the shipper for local cranage.

The serviceable value of bearing metals, viz.: resistance to crushing strain, elastic tension, tensile strength, resistance to heat, and anti-friction quality, are stated to excel in the Babbitt metal made by the New Era Manufacturing Company, Kalamazoo, Mich. A free copy of the company's booklet "All About Babbitt Metals" will be forwarded to readers mentioning this magazine.

Power Specialty Company, 111 Broadway, New York, has been awarded a contract covering equipment of eight Babcock & Wilcox boilers with Foster superheaters at the United States Naval Proving Grounds, Indian Head, Md. The Foster superheater is also to be installed in the central power plants of the Brooklyn and Charlestown Navy Yards and the United States Soldiers' Home, Baltimore, in several thousand horsepower of B. & W., Atlas and Edge Moor boilers, respectively.

A complete ship building plant is being erected at Puerto Cabello, Venezuela. This plant will be large enough for the construction of vessels of several thousand tons, both naval and merchant marine. The machine shop will be built of steel, and will be equipped with up-to-date machinery. The store room will also be of steel, and is intended to contain all the supplies necessary for the requirements of a naval station. There will be a modern electric light plant, a 2,000-ton floating dry dock of composite construction, and an iron and brass foundry.



As laid by us on the Quarter Deck, Dining Room, Stairway, etc., of the Steamer "City of Troy."

We are the original manufacturers and patentees of **Interlocking Rubber Tiling.** Careful tests made after years of service and under the most trying conditions prove the superiority of the compound and the perfection of our interlocking features, which unite the tile into a smooth, unbroken sheet of rubber, unlimited in area, preventing separation or coming up; lending itself more readily to architectural characters and affording a wider range of designs. An ideal floor covering for Steamships, Yachts, etc. It stands the constant straining and racking without cracking or separating.

NEW YORK BELTING AND PACKING CO.

91 and 93 Chambers Street, NEW YORK

PHILADELPHIA, PA., 118-120 N. 8th Street
CHICAGO, ILL., 150 Lake Street
OAKLAND, CAL., East 11th Street and 3rd Avenue
BOSTON, MASS., 232 Summer Street
BUFFALO, N. Y., 600 Prudential Building
PITTSBURG, PA., 918 Liberty Avenue
INDIANAPOLIS, IND., 229 S. Meridian Street
ST. LOUIS, MO., 218-220 Chestnut Street
BALTIMORE, MD., 114 W. Baltimore Street
SPOKANE, WASH., 163 South Lincoln Street
LONDON, ENGLAND, 58 Holborn Viaduct

Ventilating apparatus on the White Star Line. The White Star Line has recently purchased from the American Blower Company, Detroit Mich., apparatus for ventilating the dynamo room of the *Tashmoo* and the boiler room of the *Greyhound*.

Falls Hollow Staybolt Iron in France. The Paris & Orleans Railway Company has ordered staybolt iron made by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, for the 20 De Glehn compound locomotives now building at the Baldwin Locomotive Works.

The Harbison-Walker Refractories Company, Pittsburg, Pa., has had such an unprecedented demand for its booklet "Brick for Boiler Settings" that it has been compelled to issue a second edition much more complete than the first. This is just off the press, and will be sent free to any one mentioning this magazine.

"To put up the efficiency of any engine, machine or plant, and to keep everything running smoothly and constantly, nothing can equal Dixon's flake graphite," a free sample can of which will be sent to readers mentioning International Marine Engineering by the Joseph Dixon Crucible Company, Jersey City, N. J.

The International Text Book Company, Scranton, Pa., states that many of the guests at its 15th anniversary celebration held last October, expressed a desire to have in form for preservation, the addresses delivered on that occasion, and the company has, therefore, prepared a souvenir anniversary book, a free copy of which will be sent to our readers mentioning this magazine.

At the annual convention of the branch managers of the Crocker-Wheeler Company, held at the main offices and works, Ampere, N. J., in January, it was announced that the company did more business in 1906 than in any previous year. Among the specialties in which the company states it has had great success during 1906 are alternating current generators of large capacity, direct current motors for machine tools, W-type rolling mill motors, transformers and induction motors.

HELP AND SITUATION ADVERTISEMENTS.

Cash must accompany the order.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Experienced Italian Naval Engineer, living in Genoa, would take the agency for Italy of American ship yard and refrigerating machinery, ship fittings, steering apparatus, mechanical telegraph, capstans, anchors, and other auxiliary machinery. Best references. Address *Representative*, care International Marine Engineering, 17 Battery Place, New York City.

The American Ship Windlass Company, Providence, R. I., has opened a New York Office at 100 Broadway.

Gas engines and all their accessories, besides a full line of marine hardware and motor boat specialties of all kinds, are kept in stock by Terry & Company, 92 Chambers street, New York City, who are prepared to fill all orders promptly.

The steam yacht *Starling*, recently purchased by the Electric Boat Company Quincy, Mass., is being fitted with a boiler made by the Roberts Safety Water Tube Boiler Company, 26 Cortlandt street, New York City, and will be used as a tender to the Holland Submarine Boats in their government trials.

"Nothing Succeeds Like Success" is the statement made by the H. W. Johns-Manville Company, 100 William street, New York City. In calling attention to its present standing in the business world, from its small beginning half a century ago, the company states that it is now the largest concern manufacturing

CHARLES GRIFFIN & CO., LIMITED, PUBLISHERS.

In Medium 8vo. Handsome Cloth. With 306 Pages and 252 Illustrations, 15s. net.

A TREATISE ON THE PRINCIPLES OF CONSTRUCTION OF THE STEAM TURBINE, WITH HISTORICAL NOTES ON ITS DEVELOPMENT.

THE THEORY OF THE STEAM TURBINE

By ALEXANDER JUDE.

CONTENTS.—Fundamental—Historical Notes on Turbines—The Velocity of Steam—Types of Steam Turbines—Practical Turbines—The Efficiency of Compound Turbines (Type 1)—Efficiency of Turbines (Types 2, 3 and 4)—Trajectory of the Steam—Turbine Vanes—Disc Friction in Turbines—Specific Heat of Superheated Steam—Strength of Rotating Discs—Governing Steam Turbines—Steam Consumption of Turbines—The Whirling of Shafts—Speed of Turbines—Index.

Sir WM. WHITE, in the *Times* Engineering Supplement, said:—"One of the latest text-books, also one of the best. . . . Mr. Jude's book is of moderate size, and there is absolutely no 'padding' . . . The practical view of the subject is always maintained. . . . Fairness of treatment and breadth of view are conspicuous throughout. This book cannot fail to secure a prominent and permanent position in the literature of the subject."

JUST PUBLISHED. In Large Crown 8vo. Handsome Cloth, with 131 Illustrations, **6s.** net.

THE MARINE STEAM TURBINE

(LECTURES ON)

BY

Professor J. HARVARD BILES, M.Inst.N.A.

"Will be found of the utmost value to marine engineers and naval architects . . . . thoroughly up-to-date . . . . the best popular work on the marine steam turbine."—*Steamship.*

JUST PUBLISHED. FIFTH EDITION. In Large Crown 8vo., Handsome Cloth, with 111 Illustrations, **6s.** net.

ENGINE-ROOM PRACTICE:

A Handbook for Engineers and Officers in the Royal Navy and Mercantile Marine, including the Management of the Main and Auxiliary Engines on Board Ship.

By JOHN G. LIVERSIDGE, R.N., A.M.I.C.E.

"A capital account of the work of a Marine Engineer, and as such we would cordially recommend it."—*Mechanical World.*

LONDON, ENGLAND:

CHARLES GRIFFIN & CO., Ltd., EXETER STREET, STRAND, W.C.

TRADE PUBLICATIONS.

AMERICA.

Wilson & Silsby, Rowe's Wharf, Boston, Mass., sail makers, are distributing a handsome catalogue which gives a view of a racing yacht seen through a ship's port hole. The calendar contains tide tables for New York and Boston for every day in the year. A free copy will be sent upon request to readers of this magazine.

Submarine Signals is the title of a pamphlet issued by the Submarine Signal Company, Boston, Mass., and 29-30 Charing Cross, Whitehall Building, London, S. W., a free copy of which will be sent upon application. This book is made up of extracts of letters from navigators and ship owners regarding the company's submarine signals. When it is considered that in the year 1905 alone, 1038 ships were wrecked and that about two-thirds of these wrecks were due to either stranding or collision, it may be seen that there is a wide field for any device which will render navigation more safe.

Metallic Packings, for Steam, Gas and Air, is the title of a catalogue issued by the United States Metallic Packing Company, 429 North 13th street, Philadelphia, Pa. The packing illustrated in this catalogue is the company's class No. 1 design, which it has found best adapted for all classes of service, and which it states is an efficient, economical and satisfactory packing in every way. The company states that its twenty-five years' experience in the business, and the fact that its output in stationary and marine engine packings alone, reaches many hundred inches each month, qualifies it to speak in this way. "Class No. 1 packing is in use on the main engine piston rods and valve stems of the many new ships of the United States Navy built during the past few years. It has been standard on many well-known transatlantic, coastwise and lake steamers, and on stationary engines in every class of service for many years." The company has supplied class No. 1 packings for rods varying in diameter from ½ to 15 inches, and in service ranging from the old low-pressures and slow piston speeds up to the most trying conditions with high-pressures and piston speeds and superheated steam. The company will furnish at all times plans of packings to be applied to particular stuffing boxes upon receipt of sketches.

Cylindrical grinding machines are described in a handsomely illustrated and printed catalogue of 56 pages published by the Norton Grinding Company, Worcester, Mass., a free copy of which will be sent to every reader mentioning International Marine Engineering. In this catalogue the company describes its plain cylindrical grinding machines for straight and taper work that revolves upon two dead centers. These machines are made with the intention that they shall be the best in their class. Norton machines are made with fixed wheel base and moving work table. By this plan the company states that it secures the greatest convenience and rapidity in production, and the greatest accuracy of work, with the least expenditure for power and repairs. A grinding wheel will cease to be effective for accurate work when either the wheel and its support or the work begins to vibrate. Experience has taught this company that large variety of table and work speeds is essential to accurate and rapid work. Norton machines are provided with convenient means for a wide range of speeds. The devices are simple, and being an adaptation of the well known belt and cone are easily understood by operators. All changes are conveniently effected at the front of the machine, there being no overhead cones. The changes can be made without stopping either the table, work, or wheel, and can be instantaneous. This feature reduces the operating time, encourages the use of the proper speeds, and is peculiar to Norton machines. The table speeds are independent of the work speeds. With this arrangement, the work may traverse a distance equal to the full width of the wheel at each revolution of the work, which is desirable when removing stock rapidly. The work tables are very rigid along their upper edge and front way to give support to steady rests when grinding heavy cuts. The machines have automatic cross feed. There is provision for a large supply of water. The pump is as well made as the best machine tool; has grinding bearings; requires no packing, and the company states that it will run years without attention. The bases are single massive castings. The wheel slides rest upon long and wide ways, and are so heavy that they are held down on the base firmly by gravity, resisting all vibration. No jumping or sticking when delicate movements are made, and no lifting under heavy cuts. The oiling of the machines has been carefully planned, and self-oiling devices are used when necessary. Many points of superiority for this company's machines are named in this book, which should be in the hands of every user of grinding machines throughout the world.

C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road, Bermondsey, London, S.E.

Manufacturers of Every Description of

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For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries.

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

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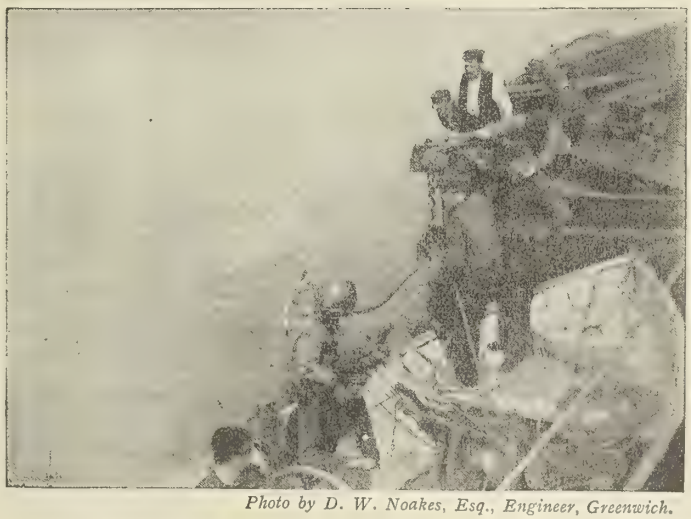


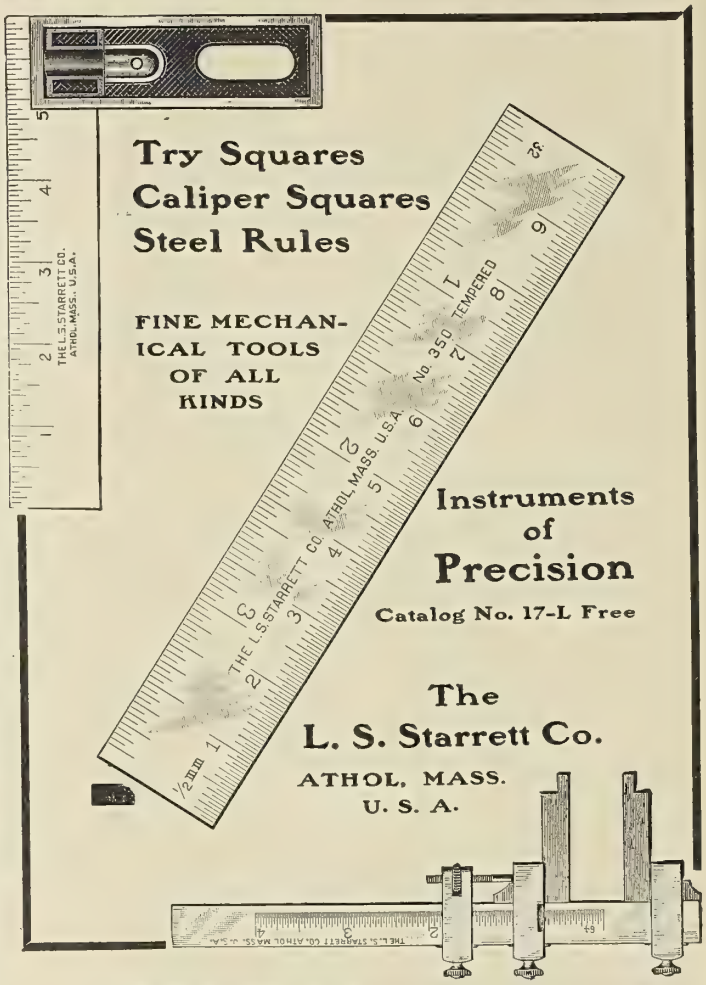
Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

The latest issue of the Progress Reporter, issued by the Niles-Bement-Pond Company, 111 Broadway, New York City, contains among other interesting matter a complete description, illustrated by this company's usual handsome half tone cuts, of the Pratt & Whitney 16-inch tool makers' lathe, which is designed for tool room use and for high class manufacturing. It has all the improvements to be found in a modern engine lathe, and in its design especial care has been taken to make the machine capable of taking the heaviest cuts with modern high power tool steels, and still have a machine which is sensitive in all its motions and convenient to handle.

Crucibles, their Care and Use, is the title of a handsomely illustrated and printed booklet of 40 pages issued by the the Joseph Dixon Crucible Company, Jersey City, N. J., a free copy of which will be forwarded to any of our readers who will mention this magazine. This pamphlet should be in the hands of every one interested in the melting of various metals. The author is Mr. John A. Walker, Vice-President, Treasurer and General Manager of the Joseph Dixon Crucible Company. The purpose of the book is to instruct users of crucibles as to their proper use and the dangers of the abuse of crucibles. It tells what graphite is and why crucibles are made of it, and why crucibles must be made of flake graphite, also why some crucibles are dark and others light, and the importance of that fact. The pamphlet fully describes the various fuels used in melting metals and their effect on the crucibles. It explains regarding the proper shape of tongs, and how they should be handled; how the metal should be placed in the crucibles, and how the crucibles should be placed in the fire. The pamphlet also contains much information on similar subjects, such as the proportion of metals in commonly used alloys. It tells the freezing, fusing and boiling points of various substances, also the specific gravity of many metals; the comparative value of fuels, and much other information of value to foundry men.

Manufacturers of gas engines, motor boats and accessories have sent us catalogues as follows, and free copies will be forwarded by the firms mentioned to readers mentioning International Marine Engineering: Barber Brothers, Syracuse, N. Y.; Bridgeport Motor Company, Bridgeport, Conn.; Buffalo Gasoline Motor Company, Buffalo, N. Y.; Camden Anchor-Rockland Machine Company, Camden, Me.; Electric Launch Company, Bayonne, N. J.; Fay & Bowen Engine Company, Geneva, N. Y.; Ferro Machine & Foundry Company, Cleveland, Ohio; Hyde Windlass Company, Bath, Me.; J. Kowalsky Engine Company, Verona, Pa.; Lackawanna Mfg. Company, Newburg, N. Y.; Lamb Boat & Engine Company, Clinton, Iowa; Marine Iron Works, Station A, Chicago, Ill.; A. Mietz, 128 Mott street, New York City; Standard Motor Construction Company, Jersey City, N. J.; George H. Terry Company, 92 Chambers street, New York City; Frank M. Watkins Mfg. Company, Cincinnati, Ohio; Pope Mfg. & Cons. Company, Fond du Lac, Wis.; Lozier Motor Company, 53d street and Broadway, New York City; Michigan Steel Boat Company, Detroit, Mich.; Western Launch & Engine Works, Michigan City, Ind.; McFarland Foundry & Machine Company, Trenton, N. J.; W. H. Mullins Company, Salem, Ohio; Stamford Motor Company, Stamford, Conn.; Smith & Mabley, Inc., 83d street and East River, New York City; New York Yacht, Launch & Engine Company, Morris Heights, N. Y.; Truscott Boat & Auto Supply Company, St. Joseph, Mich.; The Cushman Motor Company, Lincoln, Neb.; The Fairbanks Company, Broome and Lafayette streets, New York City; Grand Rapids Gas Engine & Yacht Company, Grand Rapids, Mich.; Merchants Engine Company, 259 Greenwich street, New York City; The Essex Engine Company, 416 Union street, Lynn, Mass.; Racine Boat Mfg. Company, Muskegon, Mich.; H. & H. Engine Company, 310 Hudson street, New York City; Gray Motor Company, Detroit, Mich.; Bowler Brothers, 123 Liberty street, New York City; Ramsey Mfg. Company, Bullitt Building, Philadelphia, Pa.; F. A. Seitz Company, Newark, N. J.; The Snow & Petrelli Mfg. Company, New Haven, Conn.; D. M. Tuttle Company, Canastota, N. Y.; Michigan Wheel Company, Grand Rapids, Mich.; Submerged Electric Motor Company, Menomonee, Wis.; Lozier Gas Engine Company, Buffalo, N. Y.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USE No. 1 for Yachts' Decks
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SEND FOR SAMPLES, SPECIMENS, CIRCULARS ETC.

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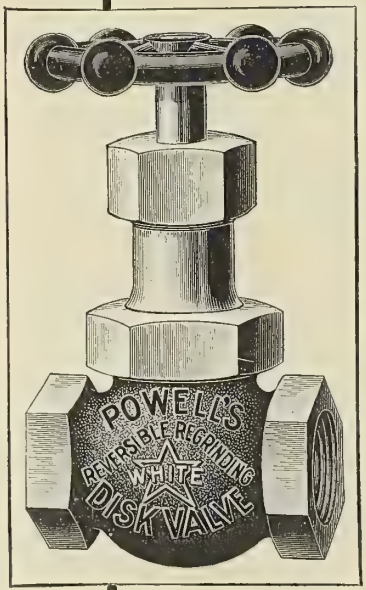

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Another Special Point In Its Favor

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New disks can be inserted by any one; requires no teaching—it's easy as a b c. Ain't such a valve worth your investigation?

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Copy 75-C FREE

This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks" discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.

Jersey City, N. J.

WANTED—One first-class assistant marine engine and boiler draftsman, $4.00 per diem. One third-class assistant marine engine and boiler draftsman, $3.52 per diem. A competitive examination will be held for the above position May 8, 1907. For further information address "COMMANDANT, Navy Yard, Boston, Mass."

WANTED—Two first-class marine engine and boiler draftsmen, $5.04 per diem, two first-class assistant marine engine and boiler draftsmen, $4.00 per diem. A competitive examination will be held for the above positions May 20, 1907. For further information address "COMMANDANT, Navy Yard, Brooklyn, N. Y."

A little treatise on the use of glue for marine purposes is distributed by Siemon & Elting, 194 Front street, New York City. The company states that its marine glue is suitable for deck seams on ships and yachts; for bedding deck lights and fixing rings in portlights, rendering them water tight; for cementing canvas on cabin tops, life boats, canoes, etc.; for attaching rubber, leather, gutta percha, cork, cloth, felt, etc., to wood, iron and other materials. It is claimed that this glue is absolutely waterproof and not affected by alkalies; that it remains flexible and adhesive in all climates; that it will not crack or chip off under extreme cold or run under tropical heat, and that it is entirely free from the disagreeable odor of pitch and similar substances.

A new form of vise is described and illustrated in a catalogue issued by the Emmert Manufacturing Company, Waynesboro, Pa. This catalogue states that there is scarcely a known industry which does not have use for one or more vises. Little interest, however, is generally manifested in the common parallel screw vises, because as a rule they are so alike in general features of construction. "We show you an improved patented type of this tool which can be instantly thrown and swung into any required position suited to the convenience of the workman without annoyance or loss of time. No single parallel vise, though provided with adjustable jaw and swivel bottom, can be adapted to the varied shapes of articles required to be held in position for rapid work in shaping, fitting and finishing."

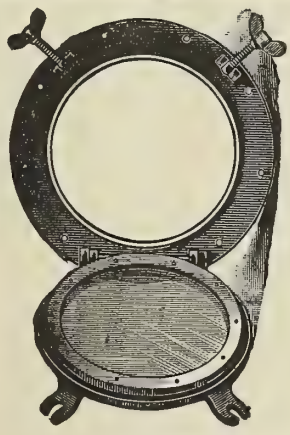
"No Cranking, the Gas Engine Problem Solved," is the title of a pamphlet issued by the New York Safety Steam Power Company, 114 Liberty street, New York City. The catalogue states that for years inventors have wrestled with the problem of how to create an internal combustion engine that will be self-starting without the aid of auxiliary power or mechanism, and that this problem has been solved in a most ingenious manner by the production of the Dock gas engine, invented and designed by Mr. Herman Dock. The catalogue goes on to say that this engine is a departure from all other engines both in principle and design, the most important feature being its positive self-starting principle. "Compressed air is not the agent used in starting this engine, as is the case in other so-called self-starting motors."

An illustrated 132-page catalogue of pipe threading machinery issued by D. Saunders' Sons, Yonkers, N. Y., should be in the hands of every man interested in the working of wrought iron and steel pipe, a free copy of which will be sent upon application to readers who will mention this magazine. The catalogue states that the company's largely increased facilities, combined with its experience in this line of manufacture (forty-nine years) enables it to present a class of tools made from carefully studied designs, and intended to meet the present demands of the trade, which calls for strong, accurate and durable hand tools and machines with increased capacity for quantity of work and conveniences to effect saving of time in adjustment, without complication or liability to get out of order. The company through its experience has become thoroughly acquainted with the wants of the trade and spares no effort to keep up its standard.

FILES AND RASPS

The World's Standard The World's Standard

NICHOLSON FILE CO. -:- Providence, R. I. U. S. A.



Marine Manufacturing & Supply Co.

157 and 158 SOUTH STREET, NEW YORK.

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CAPSTANS, WINDLASSES, STEERING APPARATUS, BRASS AIRPORTS, COALING SCUTTLES, MECHANICAL TELEGRAPHS, FLAGS AND SIGNALS, FENDERS, BUOYS, ETC.

Full line of Shipbuilders' Material and Supplies.—Oakum, Caulking Cotton, Deck Plugs, Chains, Anchors, Spikes, Bolts, Marine Glue, etc.

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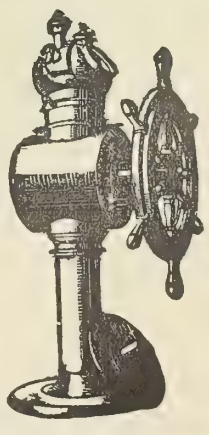
Chandlery, Hardware and Engineers' Supplies.—Cordage, Wire Rope, Packings, Waste, Machinery Oils, Tools, Paints and Varnishes.



Marine Gasoline Engines is the title of a booklet just issued by the Ferro Machine & Foundry Company, 127 Wade Building, Cleveland, Ohio, which will be sent to any one upon receipt of ten cents to pay for postage.

A free copy of a book entitled, "The Review of Technical Paints for Metal," will be sent to every reader of INTERNATIONAL MARINE ENGINEERING if he will mention this publication and address the National Paint Works, 100 William street, New York. This concern devotes itself exclusively to making paint for metal surfaces, and, to quote its own words, it "makes paint for paint's sake and not for the utilization of any by-products." The book will be of much interest to every user of paint.

A free copy of the March and April stock list issued by the Scully Steel & Iron Company, Chicago, Ill., will be forwarded to readers mentioning this magazine. This stock list contains besides the customary list of the company's steel and iron and pneumatic and machine tools of all kinds constantly kept in stock, and boiler makers' tools and supplies, several pages of useful information, such as the circumferences and areas of circles, tables of rivets, weights of steel bars, standard steam boiler measurements, etc.

The Welin Quadrant Davit is the subject of an illustrated pamphlet distributed by Mr. A. P. Lundin, 17 Battery Place, New York City, the American manager of the Welin Quadrant Davit Company. This davit has been adopted by the Allan Line, Royal Mail Steam Packet Company, Ltd., Union Castle Mail Steamship Company, Compagnie Generale Transatlantique, Chargeurs Reunis, Hamburg American Line, Holland American Line, Norddeutscher Lloyd, Toyo Nisen Kabushiki Kaisha, and by several governments. About 600 sets were supplied in the last ten months of 1906.

Second hand metal working machinery is listed in catalogue No. 13, issued by the Niles-Bement-Pond Company, 111 Broadway, New York City. This is a pamphlet of 52 pages and contains lists of the second hand metal working machinery this company has for sale, such as railroad machinery, screw cutting lathes, speed lathes, lathes not screw cutting, brass finishers' lathes, chucking machines, wire feed screw machines, planers, drills, shapers, bolt and nut machinery, tapping machines, milling machines, punch presses, shears, boring, grinding and polishing machines, blowers, forges, etc. A free copy of this catalogue will be sent to readers mentioning this magazine.

Testing for Safety is the title of a pamphlet issued by Norton Company, Worcester, Mass. In order to obviate any possibility of flaws in this company's alundum wheels the company has adopted a system of testing which has been in operation for several years, and which is most complete and exhaustive in every particular. The complete record of all the wheels tested in one day is brought before a justice of peace and the tester makes oath that he has tested each wheel at the number of revolutions indicated against it. These records are kept on file in consecutive order. If a wheel is weak or defective, it will break at a strain of 250 pounds per square inch, otherwise it must be amply strong to stand any strain to which it is subjected in ordinary use.

Vertical engines are described and illustrated in Bulletin 125 published by the B. F. Sturtevant Company, Hyde Park, Mass. Sturtevant vertical engines class V S 5 are high speed, and automatic. "A system of forced lubrication and the complete enclosure of all removal parts provides for continuous operation for weeks at a time without attention, and insures perfect reliability even in the hands of the unskilled. This type of engine is adapted to all classes of work requiring maximum power in minimum space, and is designed especially for the driving of direct connected generators. Because of the large diameter and short stroke this engine develops great power and high rotative speed without excessive piston travel."

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

71 BROADWAY NEW YORK

Free, Our Practical Pamphlets:

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

"Hercules" screw cutting tools and machinery are described in 84-page catalogue No. 6, issued by E. F. Reece Company, Greenfield, Mass. This catalogue is fully illustrated and a copy should be in the hands of every user of screw cutting tools and machines, including taps, dies, screw plates, tap wrenches, etc., also users of bolt cutting and nut tapping machinery. A free copy will be sent to any person who will mention this magazine.

Collectors of souvenir postal cards should send to the Joseph Dixon Crucible Company, Jersey City, U. S. A., for card containing a colored picture of the new City Investing Building, which is being erected in New York. This building will be twenty-six stories high above ground, and in the background is shown the forty-two story tower being erected as an addition to the Singer Building. All the structural steel work in this immense building above the street level, is to be protected from corrosion by being painted with Dixon silica graphite paint.

"Providence" hand winches are the subject of Circular No. 7 issued by the American Ship Windlass Company, Providence, R. I. Among the winches described and illustrated in this circular are cargo winches; schooner winches; barge winches; double and single geared portable cargo winches; ferry slip winches with iron frame, single geared; the "Providence" 20-ton winch; the "Providence" pump-brake yacht center board winch with wild cat; the "Providence" resting yacht center board winch, and the "Providence" mast winch.

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** YOU HAVE THE BEST IN THE WORLD

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg

A handsome embossed calendar, showing "The Cup Defender," in one of the international races, will be sent free by the Baldt Anchor Company, Chester, Pa., to readers mentioning International Marine Engineering.

The monthly stock list of the Globe Rolling Mill Company, Water and Smith streets, Cincinnati, Ohio, will be sent free to readers mentioning this magazine. This company states that it can ship promptly from its mill bars, plates, sheets, beams, channels, angles, etc., and in addition to the items mentioned in the booklet, it is prepared to furnish direct from its mill on short notice refined iron in rounds, squares, flats and hexagons; square root iron or steel angles, etc.

Pneumatic forges and holder-ons are illustrated and described in folders distributed by the Gunnell Machine Company, Manitowoc, Wis. The statement is made of this company's pneumatic forge that it heats two hundred rivets per hour without burning them; that it has a constant fuel feed, consuming only two cubic feet of air per minute, and burning a small amount of fuel per day. The weight of this forge is only fifty pounds.

Small power motors for direct and alternating current are described in illustrated leaflets mailed by the Holtzer-Cabot Electric Company, Brookline, Mass. The shafts of these motors are made of crucible steel, the bearings of hard drawn phosphor bronze with laminated drum wound armatures. The commutators are of copper, insulation is mica. These motors are especially suitable for automatic devices.

The Warner & Swasey prism terrestrial telescope is described in an illustrated folder mailed by the Warner & Swasey Company, Cleveland, Ohio. This instrument, the manufacturer states, represents the highest development in terrestrial telescopes. "Its relation to the ordinary telescope is the same as that of our prism binocular to the old type of field glass. Its clear definition is a surprise to every observer."

Prism binoculars are described in a neatly bound vest pocket booklet issued by the Warner & Swasey Company, Cleveland, Ohio. This booklet states "The old type of binocular (opera glass style) usually magnifies four or five and never more than six diameters. With these powers, the fields of view are respectively but four, three and two and a half degrees. Our lowest power of binocular magnifies six diameters and has a clear field of view of six and three-quarters degrees."

A free copy of the monthly stock list issued by the Cincinnati Iron Store Company, Cincinnati, Ohio, will be sent to any of our readers who will mention this magazine.

The new plant of the American Spiral Pipe Works, Chicago, Ill., is illustrated in a folder this company is distributing. This folder states that spiral riveted pipe galvanized is especially adapted for exhaust, steam, compressed air, suction lines, etc.

The Male and Female Kewanee Union is described in an attractive circular issued by the Western Tube Co., Kewanee, Ill. The special advantage claimed for this union is that no nipple is required, the connection being made direct with the male end.

"A Little Book With a Big Purpose," is the title of a booklet issued monthly by the Crosby Steam Gage & Valve Company, 16 Dey street, New York City. The February issue describes and illustrates "The Original Single Bell Chime Whistle," for use on locomotives, steamships, factories and fire alarms.

A ventilating air port is the subject of a folder issued by J. W. Atlee, Riverton, N. J. This air port is stated to open and shut like a house window. It does not swing and run the risk of hitting one on the head. Automatic ventilation is provided when closed. The device is already in use on a number of steamers.

Marine plumbing specialties are the subject of a handsomely printed and illustrated catalogue issued by A. B. Sands & Son Company, 242 Water street, New York City, a free copy of which will be sent to any of our readers upon application. This catalogue should be in the hands of every ship or yacht builder and owner.

Cranks for small gas engines and automobiles are described in illustrated folders distributed by the Norton Grinding Company, Worcester, Mass. The company has a separate department for this work, and is prepared to furnish finished ground cranks, or it can fit out machines for those who wish to make their own cranks.

Pressed steel boats are described and illustrated in catalogue 13, published by the W. H. Mullins Company, Salem, Ohio. Introduction to this catalogue states "We tell you simply and understandingly how we build our boats, why we build them as we do, and what our construction insures you in durability, comfort, safety and speed. If it is not all plain to you, write to us asking all the questions you want, and we shall be glad to answer them."

REFRIGERATING AND ICE MAKING MACHINERY

ECONOMICAL

STRONG MATERIALS

BEST WORKMANSHIP

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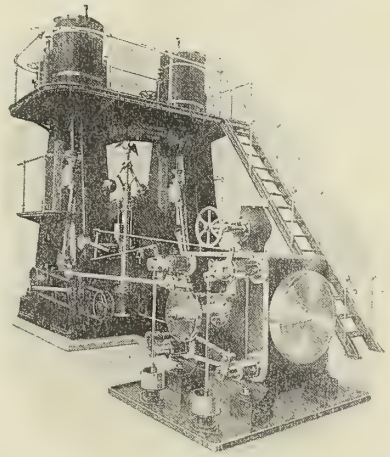

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"Great Lakes" Refrigerating Machine
Write for Catalogue "B"

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DETROIT MICHIGAN

ANTONIO C. PESSANO, President and Gen'l Manager
GEORGE H. RUSSEL, Vice-President
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TRADE PUBLICATIONS.

GREAT BRITAIN

A new design back geared, self-acting sliding, boring and screw cutting treadle lathe is described and illustrated in a catalogue issued by Drummond Brothers, Ltd., Rydes Hill, near Guildford, Surrey. This lathe has been designed especially for modern engineering and precise work. It can be arranged to cut off all usual metric threads as well as English pitches.

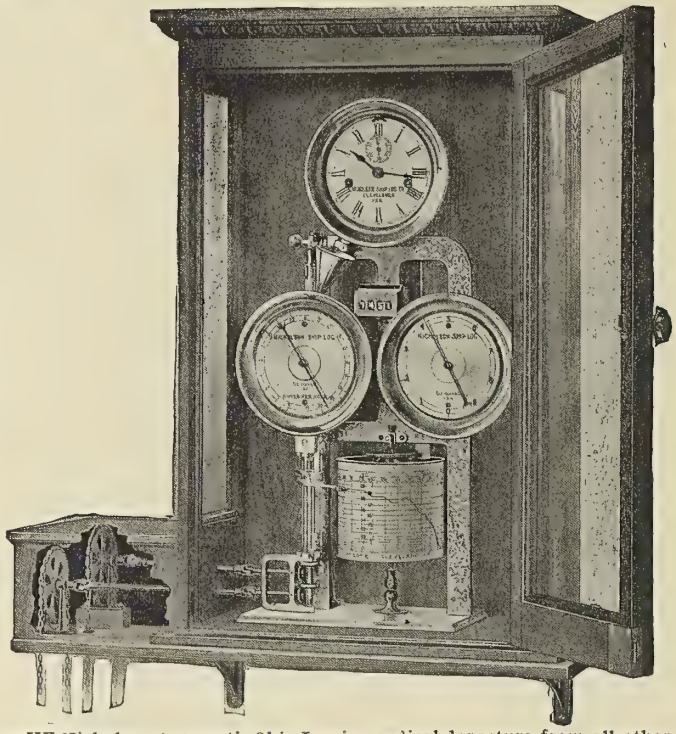
McNeill's slag wool, an insulating material made by F. McNeill & Company, Lamb's Passage, Bunhill Row, London, E. C., is described in illustrated folders this firm is distributing. The insulating material is used on the *Majestic, Teutonic, Celtic, Cedric* and many other ships of the merchant marine, besides on many battleships of the English Navy.

Turner Brothers, Ltd., Rochdale, in an illustrated folder, call attention to their "Fire Fly" brand of asbestos goods, and state that after holding the Admiralty contract for many years in succession, they have again received it. The fact of the firm's securing these contracts from year to year in the face of keenest competition, is evidence of the excellence of their goods, a free sample of which will be sent upon application to readers mentioning International Marine Engineering.

Hexagon turret lathes are described in a handsomely illustrated book of 78 pages, published by Alfred Herbert, Ltd., Coventry. On receipt of samples or drawings of suitable work, this company will submit estimates with time guarantees for each article. The company will also send free of charge a skilled operator to start up each lathe and give instructions to the workmen. Where there is difficulty in securing a good operator, the company will take to its works any suitable man from its customers' works and give him a week's training free of charge.

A patent reversible propeller is illustrated in a folder distributed by Villinger's Patent Reversible Propeller Syndicate, Ltd., 35 New Broad street, London, E. C. One of the main features claimed for this propeller is increased efficiency in operating and reversing the blades; this object being attained by having an inner axial bearing to carry a journal on the root of each blade, so that each root flange is rigidly held and guided between two good bearings, thus allowing the blade to revolve smoothly on its own axis, similar to an engine crank working between two bearings close up to the crank.

A Description of the Works and Productions of John Abbot & Company, Ltd., Park Works, Gateshead-on-Tyne, is a handsomely printed and illustrated booklet which will be sent free to readers mentioning International Marine Engineering. This is a reprint with additions, from *The Machinery Market,* of December, 7, 1906. Among the illustrations in this book are those of a 10-ton self-contained hydraulic crane lifting a 50-cwt. "Lion" anchor; a 7-ton hydraulic luffing crane; a coal staith built by the same company; a hydraulic pipe testing machine; a winged "Lion" anchor; a portable hydraulic quay crane at the Southampton Docks of the L. & S. W. Railway Company; and a representative type of hydraulic pumping engine. Messrs. John Abbot & Company, Ltd., are manufacturers of all kinds of hydraulic machinery, cranes, hoists, capstans, constructural iron and steel work, chains, anchors, forgings, marine engine and turbine castings, side lights, and ships' brass works, ships' plumbing, refrigerating installations, valves and cocks, copper and sheet iron work, ventilators, etc.



THE Nicholson Automatic Ship Log is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

It performs four separate and distinct operations viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.

CLEVELAND, OHIO, U. S. A.

London office: HENRY HUGHES & SON, 59 Fenchurch St., E. C.

The Simms paraffin vaporizer is the subject of a folder issued by the Simms Manufacturing Company, Ltd., Kilburn, London, N. W.

The Making, Repairing, and Testing of Nautical Instruments, is the title of a booklet published by Henry Hughes & Son, Ltd., marine and manufacturing opticians, 59 Fenchurch street, London. Every user of chronometers, clocks, watches, barometers, chart tables and instruments, etc., should have one of these catalogues, a free copy of which will be sent to readers mentioning International Marine Engineering.

The Napier marine motor is described and illustrated in a handsome 56-page catalogue distributed by S. F. Edge, Ltd., 14 New Burlington street, London, S. W. This catalogue states that the Napier motor is so well known that detailed description is unecessary. The company states that this motor has been designed to meet the prevalent conditions of the sea and river, in the same manner that the Napier car motor deals with the conditions met with on the road.

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A motor launch catalogue is being distributed by the Immisch Launch & Boat Company, Ltd., Hampton-on-Thames. This catalogue states that the company has carried on a successful business as builders of all types of launches and boats since 1887.

Ailsa Craig Motor Company, Chiswick, London, W., is distributing an illustrated folder calling attention to its marine engines, launches, yachts, tenders and dinghies, propellers, electric light sets, reversing gears, ignition apparatus, etc.

An illustrated catalogue of high speed launch engines and steam motor boats, high-pressure water tube boilers and improved paraffin burners will be sent free to readers mentioning International Marine Engineering by the Lune Valley Engineering Company, Lancaster.

"Some Remarks on Thornycroft Marine Motor Work," is the title of an illustrated catalogue distributed by John I. Thornycroft & Company, Ltd., Chiswick. The catalogue states that the Thornycroft motors and boats are recognized throughout the world as exemplifying all that is best whether for pleasure, commercial, passenger and cargo, government or naval purposes.

Marine motors, reversing clutches, and whistles are described in illustrated catalogues published by the Fairbanks Company, 78 City Road, London, E. C. The Fairbanks engines are sold under guarantee, and the company carries a large stock at all times, together with accessories, propellers, Tobin bronze shafting, etc.

A list of installations made on steamships and yachts by J. H. Holmes & Company, electric light and power engineers, Newcastle-on-Tyne, is the subject of List 103, which contains the names of 804 steamships and yachts on which this company has installed electric lights and supplied the generating plants. Photographs of a few of these vessels with descriptions of their installations are included.

White brass anti-friction metal is described in an illustrated folder distributed by H. B. Buckland, Newcastle-on-Tyne. The folder states that this anti-friction metal, though perhaps not so well known as others, is about the oldest mixture in use, but was without a name until 1891, when it was first given the above title. It had previously been in use about forty years in railway work. Since 1891 it has been extensively used in marine work.

The High Tension Motor Works, Addington Square, Camberwell Road, London, S. E., are mailing circulars describing and illustrating their reverse gear.

The 1907 price list of Dixon Bros. & Hutchinson, Ltd., Woolston, Southampton, engineers and naval architects, will be sent free to all readers mentioning this magazine.

"Something Worth the Attention of Users of Screw Propellers" is the title of a folder Preidel's Patent Propeller Company, Ltd., 110 Cannon street, London, E. C., is distributing.

Gardner marine engines are described and illustrated in catalogues mailed by Norris & Henty, 87 Queen Victoria street, London, E. C. The Gardner engines are of the four-cycle type, with mechanically operated inlet and exhaust valves.

McLeod's anti-friction metals and anti-friction metallic packing are the subject of circulars distributed by A. McLeod & Company, Hartlepool, makers of manganese, phosphor and aluminum bronzes.

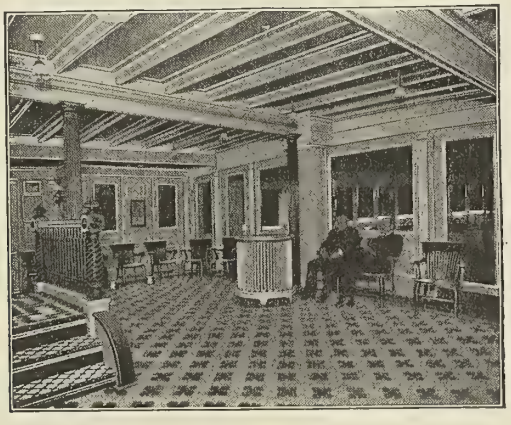
Brooke motor boats and motors are the subject of an illustrated catalogue issued by J. W. Brooke & Company, Ltd., Lowestoft. These motors are all built on the four-cycle principle from 4 to 300 horsepower, one to six cylinders.

Geyer patent propellers with reversible and non-reversible blades are described and illustrated in a catalogue issued by the Deco Company, The Harbour, Paignton.

The marine motor list for 1907 distributed by the Parsons Motor Company, Ltd., Town Quay, Southampton, will be sent free to readers who will mention International Marine Engineering.

Paraffin and petrol motors are illustrated and described in a catalogue issued by the Clift Marine Motor Company, 11 King William street, London, E. C. This company can supply complete vessels fitted with its engines, built of either steel or wood, and can supply designs when necessary.

The "Reliable" marine motor is the subject of a very attractive catalogue published by the Riverside Works Company, Weybridge, Surrey. This company builds all classes of pleasure and commercial motor or steam launches, tugs, barges and auxiliaries in wood or steel, and any make of motor, engine and boiler will be fitted to suit the requirements of customers.



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LONDON, ENGLAND, 58 Holborn Viaduct

Reversible propellers are illustrated in a price list issued by Flower & Company, 23 Bucklersbury, London, E. C.

The Seamless Steel Boat Company, Ltd., Wakefield, describes and illustrates a seamless steel twin screw cruising launch, and a yacht's motor dinghey in circulars the company is distributing.

A neat catalogue describing and illustrating Marmot valveless kerosene engines will be mailed to any reader of this magazine upon request by Sharer & Young, Ltd., Alloa, Scotland.

The Monitor Shipping Corporation, Ltd., 5 St. Nicholas Buildings, Newcastle-on-Tyne, is distributing a pamphlet setting forth the advantages of the Monitor type of vessel.

Ship deck pumps are illustrated in a folder mailed by Boulton & Paul, Ltd., Norwich, makers of motor boats and engines.

A patent compound slow speed vertical direct acting boiler feed pump is illustrated and described in a catalogue issued by Nichols Bros., Oakwellgate, Gateshead-on-Tyne.

The British Duplex Motor is the subject of a folder mailed by the Motor Engine & Manufacturing Company, Ltd., 12-13 Henrietta street, London, W. C.

"Seal" marine motors are described and illustrated in a catalogue issued by the Seal Motor Company, Hammersmith, London, W.

Hesse reversing gears are described and illustrated in a catalogue issued by the Teddington Motor Car & Launch Works, Teddington, London, S. W.

BUSINESS NOTES.

AMERICA

REMOVAL NOTICE.—The Camden Anchor-Rockland Machine Company has moved from Rockland, Me., into its new up-to-date factory at Camden, Me. The company will still maintain its Rockland store, carrying a line of supplies as in the past, and will also carry a full line of Knox engines, parts, supplies and fittings.

SHIPS EQUIPPED WITH THE NICHOLSON SHIP LOG. The Nicholson Ship Log Company, 409 Superior avenue, N. W., Cleveland, Ohio, has recently equipped with its log the steamers *Momus, Antilles, Oriole, Pueblo, Senator* and *Queen,* all of the Pacific Coast Line Company; the *City of Cleveland* of the Detroit & Cleveland Line; The Dominion Cruiser *Vigilant;* the *Ashtabula, Favorite, President* and *Governor* for the New York Shipbuilding Company; The *Eastland* and *Roosevelt* on the Great Lakes, and three more ships building at Cramp's yard—hulls No. 342, 343 and 344, not yet named. This company's automatic ship log is said to be a radical departure from all other types of logs. It has no trailing line outside, and is not connected with the engine, but is built in and becomes a part of the ship. It performs four separate and distinct operations; viz.: keeps the time; shows at all times the speed in knots or miles per hour; counts the distance travelled, and records same on a paper chart showing every variation in speed during the trip. The log can be placed in the chart room, pilot house or on the bridge, or where most convenient. A free catalogue will be sent upon application.

"MUCH OF THE CREDIT for the enormous increase in popularity of Interlocking Rubber Tiling is due to the Pennsylvania Rubber Company, Jeannette, Pa., which entered this field with a new and simplified arrangement of interlocking rubber tiles a few years ago. Appreciation of the wide variety of uses to which this material could be successfully applied, led the company to exploit its product vigorously, with the result that at present there is scarcely any class of building in which it is not found. Ocean liners, lake steamers, ferryboats and yachts are large users of this tiling because of its non-slippery character, and the fact that it remains unaffected by constant wrenching strains. As flooring for elevators it is also popular for the same reasons. Some idea of the scope of its usefulness may be gathered from the fact that it may be seen upon the floor of one of the finest cathedrals in the country, and in one of the largest of the public art galleries, and at the same time in many kitchens, vestibules and bathrooms of the well-to-do. The advantages claimed for this interlocking rubber tiling are so many that space does not permit their enumeration, but it is said to outwear even marble, to form an absolutely waterproof surface, and to be so easily applied that any workman of ordinary skill can lay it."

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Rochester automatic lubricators, made by Greene, Tweed & Company, 109 Duane street, New York City, may be regulated to feed anywhere from one to thirty drops per minute, and the manufacturers will send one on thirty days' trial to readers who will mention this magazine.

Removal Notice.—The Chicago office of the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass., which has been located for twenty years at 16 North Canal street, has been removed to new and much larger quarters at 7-9 South Jefferson street. A large assortment of gauges of every description and a complete line of brass pop safety valves, water relief valves, and indicators will be carried in stock.

One of the needs aboard ship in an economical and sanitary flooring. The C. Clemente Company, 1722 Oregon avenue, Northwest, Cleveland, Ohio, states that it meets this need with Sawdolet, a floor that is applicable to steel decks without expensive preparation. It is sanitary, of monolithic character, laid in one sheet with either gloss or mat surface. The company also states that Sawdolet will not keep a steel deck from warping, but as a result of the deck warping, this material will warp with it, and in extreme cases will be destroyed. Furthermore warping the floor while the underside of the deck is exposed to the natural atmospheric condition, will give an unequal expansion, such as may either destroy or merely buckle the floor. Sawdolet has been fitted to many of the great steamers now building at the yards of the American Shipbuilding Company, Cleveland, Ohio.

Metal gaskets for cylinder heads, unions, flange joints, steam traps, ammonia fittings, air, steam and oil pumps, etc., are made by the U. S. Indestructible Gasket Company, 16 South William street, New York City. This gasket is designed for use in place of rubber or other materials in general use for packing purposes. It consists of thin sheet metal stamped with concentric corrugations. Three to six corrugations are all that are necessary, so that the space within the bolt holes usually determines the width of the gasket. In cases where the flanges are thin, and for this reason liable to bend when the bolts are tightened, it is advisable to extend the copper gasket to the full width of the flange. The company states that the connection made with these gaskets will not blow out after continued use, for each corrugation makes the entire circle of the flange and so long as the contact is kept complete by compression, the joint cannot leak.

Large electric cranes, equipped with induction motors, have been in successful use for some time, and recently various attempts have been made to furnish electric hoists similarly equipped, but the different characteristics of alternating and direct motors were not taken into account and the attempts were not very successful. The Sprague Electric Company, 527 West 34th street, New York City, states that fully realizing the limitations of the induction motor, it has for the past year been conducting experiments, and that it has now produced a practical, durable and reliable electric hoist equipped with an induction motor, for use on two or three phase circuits of 60 cycles frequency, and that the first size ready for delivery is the Sprague electric S-1 hoist, having a maximum lifting capacity of one-half and one ton, at speeds of 30 and 15 feet per minute respectively. Ten of these hoists have been in actual use for six months and have proved fully equal to the direct current hoist where speed is not required.

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For Sale—1,000 feet water front located on Staten Island, 26 acres of ground, deep water, long pier line, convenient to railroads and shipping; nothing better for a shipbuilding plant and storage basin. Inquire at *Water Front,* care INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York.

Experienced Italian Naval Engineer, living in Genoa, would take the agency for Italy of American ship yard and refrigerating machinery, ship fittings, steering apparatus, mechanical telegraph, capstans, anchors, and other auxiliary machinery. Best references. Address *Representative,* care INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York City.

THE INDEPENDENT PNEUMATIC TOOL COMPANY, First National Bank Building, Chicago, Ill., has just received a large order for "Thor" piston air drills and pneumatic hammers from the Wisconsin Engine Company, Corliss, Wis. The Independent Pneumatic Tool Company states that the Wisconsin Engine Company made an exhaustive test extending over three months of every make of pneumatic tools on the market before awarding this contract.

A FREE SAMPLE OF SAWDOLET, for ship flooring, will be sent to any of our readers who will mention INTERNATIONAL MARINE ENGINEERING. Sawdolet is made of wood fibre and mineral substances, and may be applied to steel decks cheaply. The manufacturer, the C. Clemente Company, 902 Park Building, Cleveland, Ohio, states that it is fireproof, waterproof, dustproof and vermin-proof; that it may be colored any tint, is monolithic and practically indestructible.

THE ADVANTAGES of a generating set in which both engine and generator are designed one for the other, and manufactured by the same company, are evidenced in recent orders received by the B. F. Sturtevant Company, Hyde Park, Mass., from the Newport News Shipbuilding & Dry Dock Company, Newport News, Va., two sets; the American Dredging Company, Philadelphia, Pa., three sets, and many other orders from manufacturing and industrial plants.

C. W. SEXTON, SUPERINTENDENT of the Waycross Electric Light & Power Company, Waycross, Ga., writes Adam Cook's Sons, 313 West street, New York City, "We have given your Albany grease a fair trial, and find it the best grease we have ever used. One No. 2 compression cup full of Albany grease lasted for three weeks continuous running on the crank pin of our 18 by 42 Corliss ice machine engine, running 65 revolutions per minute. We recommend Albany grease to all engineers."

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SOME OF THE RECENT BUSINESS secured by the Power Specialty Company, 111 Broadway, New York City, includes the following orders for Foster superheaters aggregating many thousand horspower, for installation in various types of water tube and fire tube boilers: Newnan Cotton Mills, Newnan, Ga.; Illinois Central Railway, Chicago, Ill.; Tennessee Copper Company, Copper Hill, Tenn.; Canada Turpentine Company, Montreal; Cross, Austin & Ireland Lumber Company; Old Dominion Copper Company; Charles S. Tanner Company; Columbia Improvement Company; Bucyrus Company, and Philadelphia Electric Company.

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BUSINESS NOTES.

GREAT BRITAIN.

J. Butler & Co., Halifax, England, makers of machine tools, have appointed J. E. Lawler & Muirhead, 39 Lime street, E. C., their sole London representatives.

The light ships on the United States Pacific coast are to be equipped with the new system of submarine telephones made by the Submarine Signal Company, Boston, Mass., and 29-30 Charing Cross, London, S. W.

The well-known motor boat *Dion Bouton* was the principal exhibit of De Dion Bouton, Ltd., at the Motor Boat Show in London. This boat is built of cedar and was accompanied by a large photograph of the trophies won in 1906 at Cowes, Southampton and Burnam-on-Crouch.

"Brooke I" was the motor boat exhibited by J. W. Brooke & Company, Ltd., Lowestoft, at the Motor Boat Show, held in London last March. This boat is 39 feet 9 inches long, 5 feet 6 inches beam. The engines are 350 horsepower, the propeller being 22 inches in diameter and running at 900 revolutions per minute. The fastest actual speed yet obtained was 26 knots, but the company expects to increase this to the calculated speed of 31 knots.

Many sizes of marine motors were exhibited by the Parsons Motor Company, Southampton, at the Motor Boat Show, held in London in March, together with reverse gears, reversible propellers, water cooled silencers, universal joints, and other marine fittings. Among this company's exhibits was a single cylinder engine partly sectioned and coupled to a propeller, the whole being kept in motion by a small electric motor, showing the principle of both engine and reversible propeller.

A 30-foot boat, with 15-horsepower motor, especially designed and built for the requirements of the Plymouth Port Medical Authorities, was one of the exhibits of Dixon Brothers & Hutchinson, Ltd., Southampton, at the Motor Boat Show in London, March 7-16. This firm also had on exhibition an 18-foot motor dinghey, built of mahogany, with close planking. No caulking was used anywhere. Besides this there were four engines on exhibition with two, three and four cylinders, ranging from 6 to 21 horsepower.

Two seamless steel launches were exhibited at the Motor Boat Show in London, in March, by the Seamless Steel Boat Company, Ltd., Wakefield. One of these boats was 40 feet long, fitted with a steel hood, under which is a ladies' cabin with two berths, after which is the main cabin. The boat was fitted with two fifteen horsepower Gardner motors and reversing gears. This boat is made with each side pressed into one and riveted to a T-bulb keel bar, and has been especially designed for cruising purposes. The other boat exhibited was 18 feet long and is suitable for use as a yacht dinghey.

Verdaise II was one of the well-known racing boats exhibited by John I. Thornycroft & Company, Ltd., Chiswick, at the Motor Boat Show, held in London last March. This boat is 25 feet in length, with a beam of 5 feet 6 inches and a draft of 18 inches. The hull is curved, built of mahogany, and the motor is a 6-brake horsepower Thornycroft engine. The speed of this boat is 7½ to 8 miles per hour. The boat is the winner of the autocar cup for the most meritorious performance at the reliability trials of 1906, and in the same trials won the gold medal in class A for boats not exceeding 75 rating. This firm had on exhibition also a number of other boats, engines and accessories.

Ediswan lamps.—It is reported that as the result of tests made at the Westminster Electrical Testing Laboratory the "Royal Ediswan" lamp came out at the top of the list. Another series of tests has lately been carried out by the same authority with 16-candle power 200-volt lamps of nearly a dozen different makes, purchased without the knowledge of the makers. The "Royal Ediswan" lamps again showed the best efficiency. Starting at less than 3.3 watts per candle, they finished at slightly less than 4.0 watts per candle at the end of 500 hours, the average consumption being little more than 3½ watts per candle for the whole period. The candle power of any of the lamps at the end of the test was within one-fourth candle power of the mean; that is within 8 percent of the rated candle power. This is the best result as regards candle power and economy in energy consumption. The average candle power throughout was well sustained and the whole of the lamps easily complied with the New Standard Specification except in initial candle power, which was rather high. The total watts at start and finish were less than 60.

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TRADE PUBLICATIONS.

AMERICA.

"Marine Boiler Deterioration, Its Causes and Effects," is the title of a book prepared with a view to assembling in concise form for the reference and instruction of marine engineers, the opinions of the foremost authorities on the causes, effects and prevention of scale, grease and corrosion in marine boilers. The book is sub-divided into three general chapters on scale, grease and corrosion, each of them being treated logically as to cause and origin, effects, and methods of prevention. The opening chapter contains a brief explanation of the causes of increased damage to marine boilers by reason of the high pressures and heavy duty now generally required; the origin and composition of boiler scales are treated carefully, and the effects of scale on coal consumption, its evil influence in promoting overheating of sheets, tubes and flues are practically illustrated. The enormous difficulty of removing scale by mechanical means from the modern types of boilers is well shown, and the methods of scale prevention as the only rational method of treating the subject is carefully illustrated, and the most practical cures are explained. The chapter on the presence of grease and oils in boilers is treated in a similar logical manner, and the interest of this chapter is enhanced by valuable data from some of the foremost authorities in the world. In the chapter on corrosion, both external corrosion and internal corrosion are treated in a very practical manner, and the various forms of pitting and corrosion are illustrated by drawings made from plates removed from actual boilers. A valuable feature of this book is the introduction of general data required in the marine engineer's daily work, and also of general interest and for general information. Useful tables are included, such as the tables of bolts, nuts and pipe; the areas of circles for calculating horse powers and the steam tables. Many useful formulae in both English and Metric systems of measurement are included, data of the bunker space occupied by different kinds of coal; horsepower constants are briefly discussed, as likewise the pitch and slip of propellers, and data for calculating slip constants are also among the useful notes found in the book. Copies of Marine Boiler Deterioration will be sent to all who mention International Marine Engineering, on application to the Bird-Archer Company, 90 West street, New York city.

No More Calendars Sent.—In our May issue we stated that the Baldt Anchor Company, manufacturers of the Baldt patent stockless anchor, Chester, Pa., would send to every reader mentioning International Marine Engineering a free copy of its 1907 calendar. This was a mistake on our part and the Baldt Anchor Company writes us that its stock of calendars has long ago been entirely exhausted.

Ball and roller bearings of all types are described in an illustrated 44-page catalogue published by the Bantam Anti-friction Company, Bantam, Conn. The "Warning to Infringers" in this catalogue states: "There are no valid patents owned by us or anyone else that control or interfere in any way with anything described or illustrated in this catalogue. Everything is free. You can make them yourselves if you choose, and no one can meddle, only we have been doing it for about nine years, are better equipped for making them, and can make them for less money than anyone else. We make nothing but ball bearings and roller bearings for our customers, who apply them to machinery and vehicles as they desire. We use the best material we can purchase, and cater to the wants of manufacturers and users only." Among the bearings illustrated and described in this catalogue of special interest to shipbuilders are converted steel collars with bronze cages for cranes, masts, etc., these are stated to be especially useful in a small space to carry a big load at not too great a speed; special thrust roller bearings, made to order of any size customers may wish; converted steel conic roll thrust bearings, self-contained, for use on high power launches and heavy machine tools; thrust ball bearings of every size with converted steel or tool steel collars, and bronze ball cages; thrust ball bearings intended for service while revolutions per minute are excessive; radial ring bearings for low, average and high pressure. Included in this catalogue is an article on the mechanical design of ball bearings and roller bearings written for the January issue of the *Engineering Magazine* by Mr. W. S. Rogers, the president and general manager of the Bantam Anti-Friction Company. The editorial comment on this paper stated that "No one will dispute the interest of Mr. Rogers' subject nor his close acquaintance with it." A free copy of the catalogue will be sent to every reader mentioning International Marine Engineering, and should be in the hands of every user of ball and roller bearings.

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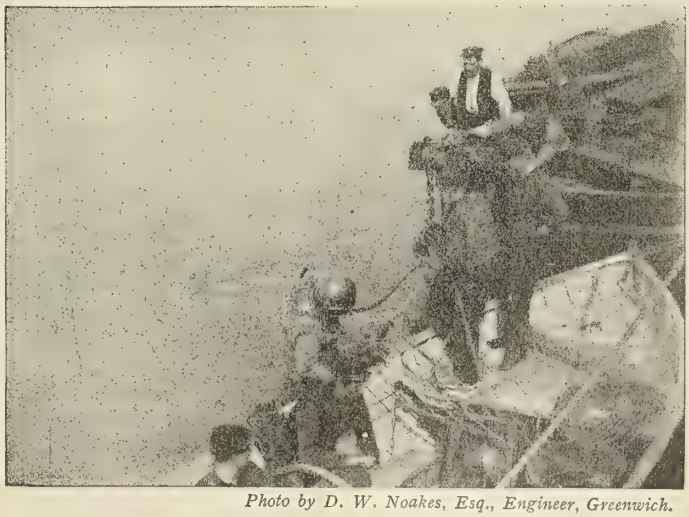
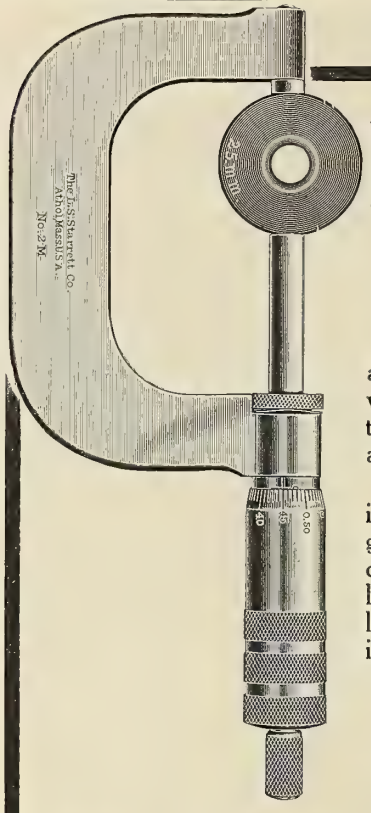


Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Every engineer, boiler maker, contractor, shipbuilder, ship owner and naval architect should have in his hands a copy of the 550-page cloth bound catalogue issued by the James Reilly Repair and Supply Company, 229 West street, New York City. A free copy will be forwarded to all of our readers who will mention this magazine. The departments of this firm are general contracting; boiler shop; machine shop; forge and steam hammer; ship joining shop; coppersmithing; steam fitting; sheet iron shop; commissary brass foundry; brass finishing shop; gauge shop; electrical outfit; pneumatic dispatch tubes; engineering specialties; white metals; rubber goods and painting. The firm has been in business since 1867, and this catalogue states that its machine shops at Jersey City and Philadelphia constitute the largest and most complete establishment of the kind in the world. In spite of the large size of this catalogue, the statement is made that it "enumerates but a part of our entire line of supplies. It is intended merely as a suggestion or intimation of the class and varieties of supplies carried in our stock or provided upon request."

Submarine Signal Bulletin, issued by the Submarine Signal Company, 88 Broad street, Boston, Mass., and 30 Charing Cross, London, S. W.: The Plymouth (England) Chamber of Commerce has asked the Associated Chambers of Commerce of Great Britain to urge the universal adoption of submarine signaling, to be paid for by the national exchequer. The new steamer *Rotterdam,* 24,000 tons, building by Messrs. Harland & Wolff, of Belfast, for the Holland-America Line, will be equipped with submarine signals. The shipping Federation of Canada has made official request of the Dominion Government to establish submarine signals at 23 points in the St. Lawrence, the Bay of Fundy and on the Nova Scotia coast. The North German Lloyd, the Hamburg-American and the Holland-America Lines have approached the French Government with a request that they equip the French harbors of call with submarine signals. Capt. W. D. Brent, of the Susquehanna Coal Co.'s tug *Tacony,* reports hearing Boston Light-vessel submarine bell 7 miles, on March 11, in a snow-storm. The direction was good and he ran to the lightship by the bell. A "Notice to Mariners," issued from the Hydrographic Office of the Admiralty, under date of March 8, intimates that it is intended by the Netherlands Government to establish submarine fog-bells on the North Hinder, Schouwen Bank, Maas, Haaks, and Terschelling Bank Lightvessels.—*Shipping Gazette,* March 14. Capt. G. F. Coffin, of the Commercial Tow Boat Co.'s tug *Dudley Pray,* reports that he considers submarine signals a great aid to navigation, because on March 23, at 5 A. M., when approaching Cornfield Point lightship in fog he picked up the sound of the bell very distinctly; passed the lightship at 6:10, and carried the sound till 6:33; speed 5 knots. *Lloyd's Gazette* of March 4 says: "The Red Star Liner *Vaderland,* of 12,018 tons, has happily made but a short stay on the Goodwins, where she was reported aground late last night. Such a casualty as this—and, indeed, other strandings which have occurred in these narrow waters during the recent foggy weather—would probably have been avoided were submarine bells employed on the lightships in the locality." Washington Associated Press dispatches, dated March 20, say that Capt. Adolph Marix, U. S. N., who has charge of all the naval colliers, made a trip from Boston to Baltimore on the Merchants & Miners steamer *Ontario* to observe the working of submarine signaling. On the trip down the coast the *Ontario* exchanged tests with the lightships on Boston, Pollock Rip Shoals, Winter Quarter Shoals and Cape Charles stations, and it is stated that the practibility of the new safety device was fully demonstrated. Capt. Marix will embody the result of his observations in a report to the Navy Department. The *Shipping List and Lloyd's Gazette* (Liverpool) of March 19, commenting on the annual report of the North German Lloyd Company, says: "The Company has something to say about submarine bells, and an intimation is given that before long no fewer than four important points on the German coast will be provided with submarine signaling appartus. It is apposite to remark that if ever the usefulness of this system was apparent a case was made for it by the wrecks in the English Channel reported yesterday. The *Suevic* could hardly have got on the rocks had there been a submarine bell to warn her, and the same would probably have been the case with the *Jebba.* People may talk about this or that form of illuminant as being more especially suited to foggy weather, or of this or that explosive signal as being the best. But, when all is said and done, by far the simplest and most effective means of avoiding wreck is found in the submarine bell, which, indifferent to gale or the density of the atmosphere, repeats in the silent waters its warning note to the ship which may be heading to destruction."



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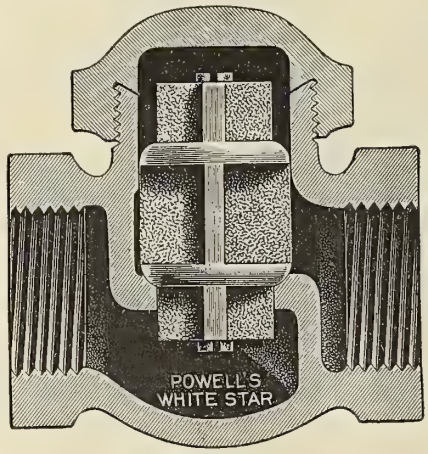

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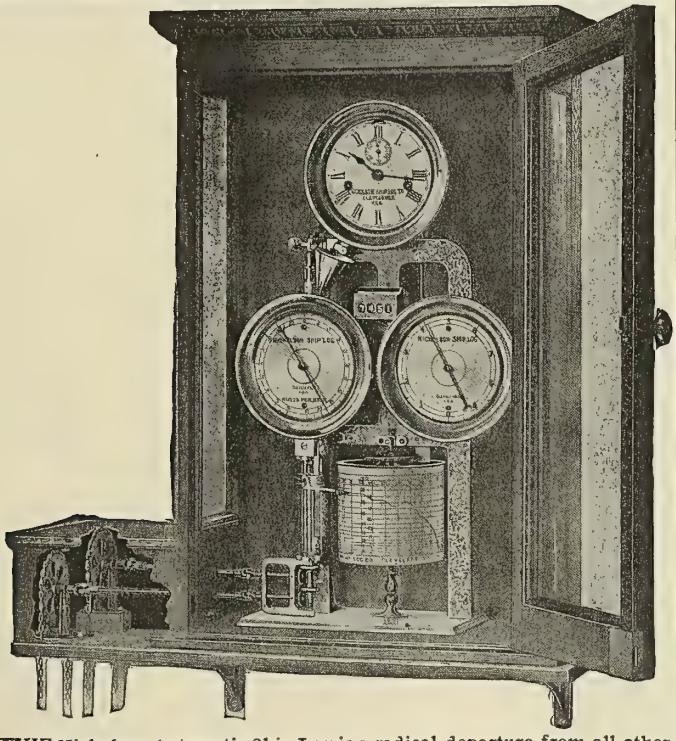

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Crane Specialties, such as valves, fittings and appliances for every purpose and all pressures, are the subject of a very complete 100-page illustrated catalogue published by Crane Company, Chicago, Ill., which should be in the hands of every boiler maker, engineer and user of such appliances. A free copy will be sent to readers mentioning this magazine.

Every user of steam pressure and vacuum gages, indicators and engineering instruments in general should have a copy of the handsome new catalogue issued by the Ashcroft Manufacturing Company, 85 Liberty street, New York city. This is a very fully illustrated cloth bound volume of 136 pages. The company states that since its establishment in 1851, it has been its constant aim to make goods of the highest class of workmanship and materials only, so as to maintain its reputation for quality. This catalogue has a complete index, so that the engineer can find listed the article he is looking for at a moment's notice. The Ashcroft Manufacturing Company has recently made a large addition to its works, more than doubling its previous capacity and thus insuring its customers prompt delivery of any class of goods under all conditions. The company received the Grand Prize at the World's Fair, St. Louis, in 1904.

New Booklet on Albany Grease. Adam Cook's Sons, 313 West street, New York city, makers of Albany Grease, are sending to the trade a new booklet dealing with their product and bearing the title "Machinery Lubrication." This is a booklet that is more than a trade catalogue. It is full of interesting information about lubrication of machinery. Incidentally it tells the vital facts about lubricants and why the manufacturers claim that "Albany Grease" is more reliable in the reduction of friction to a minimum, getting thereby more power out of your engine or effective work out of your machinery, than any lubricant known. The booklet is of convenient size for the pocket or file, and is illustrated by pen and ink drawings indicating various classes of machinery that extensively use "Albany Grease" as a lubricant. This includes everything from an "automobile to a battleship." The cover of the booklet is very attractive, bearing the slogan, "Lighten your Machinery Loads with Albany Grease." It also shows the familiar Albany Grease trademark as a prominent feature in colors. You can have this booklet free simply by writing for it.

Every user of pneumatic tools and machinery of any description should send for a free copy of catalogue No. 17, issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., which will be sent to all readers who mention this magazine. This is a very handsomely illustrated and printed volume of 192 pages, and lists the products of this corporation's constituent companies, which are as follows: Chicago Pneumatic Tool Company; Chicago, Ill; The Boyer Machine Company, Limited, Detroit, Mich.; The Moore Pneumatic Crane Plant, Cleveland, O.; The Franklin Air Compressor Company, Franklin, Pa.; The Standard Pneumatic Tool Company, Chicago, Ill.; The Philadelphia Pneumatic Tool Company, and the Keller Pneumatic Tool Company, Philadelphia. This company also has several foreign branches, the British house being the Consolidated Pneumatic Tool Company, Limited, 9 Bridge street, Westminster, S. W., London. The catalogue states that Chicago Pneumatic Tools and appliances and their adaptability to a wide variety of work are so well known and understood throughout the world, that a synopsis of their history is unnecessary. The best recommendation of the company's product is stated to be that all large manufacturing institutions and contractors engaged on work to which pneumatic tools and appliances are adaptable, use almost exclusively tools of this company's manufacture.

AN EXCEPTIONAL OPPORTUNITY for bright young men to enter the Government service, and obtain a good position for life, is afforded by the United States Treasury Department, which will, on June 18, hold an examination for the appointment of Cadet Engineers in the U. S. Revenue Cutter Service. The examination will cover a period of four days, and is open to all young men between the ages of 21 and 25 years who have the necessary moral and professional qualifications. A circular containing information and requirements relative to the appointment of Cadet Engineers in the United States Revenue Cutter Service has been prepared by the Department, and a copy of the same will be forwarded to any one interested in this examination upon making application to the Honorable, The Secretary of the Treasury, Washington, D. C.

"A Study in Graphite with Tests," by Professor W. F. M. Goss, Purdue University, is a booklet published by the Joseph Dixon Crucible Company, Jersey City, N. J. It gives in detail a series of tests of graphite made by Professor Goss which were not made with a view to finding points for or against graphite, but which were conducted in a spirit of scientific research. A free copy of this booklet will be sent to readers of the magazine upon request.

"Rochester" automatic lubricators are described and illustrated in a handsomely printed 72-page catalogue issued by Greene, Tweed & Company, 109 Duane street, New York city. This catalogue states that force feed lubrication is acknowledged universally to be the best known method of lubrication, but that it has been the company's experience that unless the mechanism employed in the application of this principle is of a high class construction, it acquires only temporary success. This company's lubricators are applied to many types of engines, pumps, machines, etc., and the catalogue describes and illustrates many such applications for steam, gas or air, and also for some types of bearings. Every reader of this magazine should send for a free copy of the catalogue.

Economical Steam Production is the title of a catalogue issued by the Vulcan Soot Cleaner Company, Du Bois, Pa. The catalogue states that the economy of fuel in any power plant is measured by the proportion of heat that can be transmitted through the tubes of the boiler into the water. The tubes are made thin and small for the purpose of securing this economy, but become covered with a heat insulating covering or lining of soot and ash. Could these tubes be kept clean as new, the coal bill would be reduced from five to fifteen percent. This saving in coal the Vulcan Soot Cleaner Company claims to bring about at a very low cost of operation.

Brass and iron goods for steam, water and gas; brass and iron body valves and cocks; brass fittings; cast iron fittings; wrought iron pipe; malleable iron fittings; seamless drawn brass pipe; tools, etc., are illustrated and described in a handsomely printed cloth bound catalogue of 284 pages, published by the McNab & Harlin Manufacturing Company, 50 John street, New York City. This catalogue should be in the hands of every user of such goods. Steam pressures have increased from year to year, making it necessary to meet new requirements, and it has been this company's aim to keep fully in touch with the demands of the trade. It has accordingly adapted its patterns and machinery to meet these demands. McNab & Harlin Manufacturing Company has enlarged its plant, and states that it has installed the most modern machinery with the idea of turning out its product with the least possible delay. The company carries a complete stock of all staple goods at its New York warehouse as well as at its factory at Paterson, N. J.

The Thermit Welding Process, and what it offers to transportation companies, is the subject of a handsomely illustrated pamphlet, published by the Goldschmidt Thermit Company, 90 West street, New York city. One of the sections of this pamphlet is devoted to the subject of Thermit welding on steamships, and numerous instances are given of severe tests of this method of repairing. For instance, on the Clyde Steamship Company's *Apache* in June, 1906, one year after a break in the stern frame was welded by the Thermit process, the propeller struck some submerged body, the shaft was badly bent so as to cause the wheel to revolve in an eccentric manner, one fluke striking the shoe. During a period of ten hours, running at half speed, the number of blows dealt upon the welded skeg by the propeller was about 45,000. At the end of ten hours the shaft was finally broken off and the propeller wheel lost. When the *Apache* was dry-docked, the weld was found to be in absolutely perfect condition, and had stood the enormous and unusual strain without showing any signs of detioration.

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"Fibrite," "Durite" and "Kantlite" for steamboat panels and car headings are described and illustrated in folders distributed by Wendell & MacDuffie, 26 Cortlandt street, New York city, sole agents in the transportation field for the Indestructible Fibre Company.

"A Well Ordered Shipping Department" is the title of Bulletin No. 44, published by the Robins Conveying Belt Company, 13 Park Row Building, New York city. This folder illustrates an installation of Robins package conveyors in the shipping department of B. Altman & Company, New York city.

A second edition of Instruction Book No. 5 has been issued by the Smooth-On Manufacturing Company, Jersey City, N. J., and a free copy will be sent to any reader mentioning this magazine. This book tells a few of the many ways in which the different Smooth-On specialties have been used and results obtained. It is very interesting and should be in the hands of all shipbuilders, engineers, boiler makers and other steam users.

"The Weston Multimeter," model 58, is the subject of Bulletin No. 6, issued by the Weston Electrical Instrument Company, Waverley Park, Newark, N. J. This multimeter is stated to be a new form of electrical measuring instrument possessing a wide range of usefulness in the measurment of electrical quantities. It is stated to be an instrument which will accurately serve the purposes of a direct current voltmeter, multi-voltimeter, ammeter, multi-ammeter, ohmmeter, ground detector and wheatstone bridge.

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TRADE PUBLICATIONS.

GREAT BRITAIN

Bakers' Rotary Pressure Blowers are described in circulars issued by Baker Blower Engineering Company, Stanley street, Sheffield. Among the advantages claimed for these blowers are: economy, regular and steady blast, small power, fluid iron, fewness of parts, rapid adjustment, non-injury from dust, protection from dampness, slow speed, absence of internal friction, definite quantity of air per revolution, and a great saving in belts.

The 1907 Catalogue, issued by the Simms Manufacturing Company, Ltd., Welbeck Works, Kimberley Road, Kilburn, London, N. W., states that fourteen years' experience in marine motor construction is a record which the company thinks few firms can equal, and which is largely responsible for the perfection which Simms' marine motors have attained. One of the best known launches on the Thames last year was the *Rapide,* which was fitted with a 30 H. P. Simms' motor. This boat was in constant use during the whole season for coaching and umpiring purposes, and Simms & Company state that it was not once stopped for trouble of any kind.

Machinery, Engineers' Tools and Power Plants are described and illustrated in a 160-page catalogue issued by Thomas W. Ward, Ltd., Albion Works, Sheffield. A free copy of this most useful catalogue will be forwarded upon application to readers mentioning INTERNATIONAL MARINE ENGINEERING. This publication has been compiled to meet the requirements of the company's patrons, and the exigency of a rapidly growing business in new machine tools, etc., a large assortment of which is always kept in stock, or progress, enabling the firm to give the utmost despatch in the execution of orders. Among the many tools and machines listed are bending and straightening machines; boilers; blowers and fans; boring machines; centering machines; combined engines and boilers; cranes of many varieties; drilling machines; engines of every type, including gas engines, gas producers; gear cutters; grinding and sharpening machines; hammers, hand and power shears; lathes; milling machines; planing machines; plate bending rolls; pumps; punching machines; radial drills; saws; separators; tubes and fittings; valves; winches and all kinds of woodworking machinery.

"Original Vulcanized Fibre" is the subject of catalogues issued by Mosses & Mitchell, 68-71 Chiswell street, London, E. C.

Radial Drilling Machines are described and illustrated in a catalogue issued by Midgley & Sutcliffe, Richmond Road, Bradford. The catalogue states that these machines have been reconstructed, and are made for up-to-date machine-shop work. Experience has given the company many points of advantage in detail. Stability and solid work, which are essential for high speed drilling, are stated to be the principal features of this firm's machines.

The Gardner reversing gear is described in an illustrated catalogue issued by L. Gardner & Sons, Limited, Barton Hall Engine Works, Patricroft, Manchester. Norris & Henty, 87 Queen Victoria street, E. C., are the London representatives. The statement is made in this catalogue that the Gardner reversing gear, together with the company's marine type oil engine, give a combination equal to, if not superior in maneuvering capability, to that of a good reversing steam engine.

The "Eagle" combined steam trap drain cock and grit catcher is described and illustrated in a circular mailed by Dick's Asbestos Company, 51 Fenchurch street, London, E. C. The grit catching part of the trap is arranged by the inner outlet tube extending through the web into a chamber at the bottom of the trap, this tube having two inlet openings for the condensation to pass through, which are covered by a removable metal gauze sleeve enveloping the tube. The grit, or other matter, is deposited in said chamber and can be easily removed by unscrewing the hollow plug closing the bottom. A trap will be sent on approval to readers mentioning INTERNATIONAL MARINE ENGINEERING.

"Eagle" mechanical packing for high-pressure steam, and turbines is described in an illustrated circular distributed by Dick's Asbestos Company, 51 Fenchurch street, London, E. C. This packing is constructed and arranged in rings of white metal presenting a continuous and smooth surface to the rod. The corrugated spring diaphragms, which are cast into the metal rings, secure due elasticity and perfect adjustment, while the hard asbestos rings compressing the corrugated diaphragms and at the same time bearing on the beveled portion of the white metal rings, insure the mechanical packing always being closely fitted to the rod. The circular states that this packing is easily fitted to existing stuffing boxes without necessitating any alterations.

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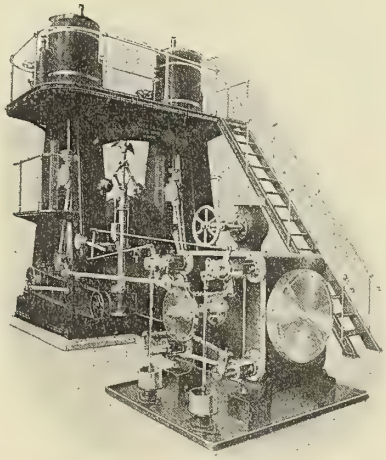

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Wailes Dove & Company, Newcastle-on-Tyne, are distributing folders illustrating and describing this company's patent "Bitumastic" Enamels, which are stated to be extremely valuable for the preservation of all iron and steel structures.

A free catalogue of wire and hemp ropes of every description, and made for all purposes, will be sent to readers mentioning this magazine by R. Hood Haggie & Son, Limited, 17 Gracechurch street, London, E. C.

Radiators and condensers are described and illustrated in a catalogue published by the Lune Valley Engineering Company, Wheatfield street, Lancaster, manufacturers of launch and auto car boilers, engines, paraffine burners, etc.

A free copy of a very completely illustrated catalogue of goods manufactured and supplied by Dick's Asbestos Company and the Eagle Non-Conducting Cement Company, 51 Fenchurch street, London, E. C., will be sent to every reader of INTERNATIONAL MARINE ENGINEERING, upon request.

A new design of 5-inch center self-acting, sliding, surfacing, boring and screw cutting lathe for treadle or power, is described in an illustrated catalogue published by Drummond Bros., Limited, machine tool makers, Ryde Hill, near Guilford, Surrey.

Allen's Steam Striker is described and illustrated in a pamphlet issued by S. W. Allen, consulting engineer, Exchange Buildings, Cardiff, a free copy of which will be sent to every reader mentioning this magazine. The statement is made that no smith's shop should be without one of these strikers for each forge.

The "Eagle" steam trap and drain cock for draining main steam pipes as well as valve casings, cylinders, coils, heating apparatus, jacketed pans, etc., at all pressures up to 170 pounds, will be sent upon approval to readers mentioning this magazine by the manufacturer, Dick's Asbestos Company, 51 Fenchurch street, London, E. C.

The "Albion" quarterly catalogue of machinery and stock will be sent free to all readers mentioning this magazine. This catalogue is published by Thomas W. Ward, Limited, Albion Works, Savile street, Sheffield. Section 1 is devoted to new and second-hand machinery; section 2, to second-hand boilers, tanks, tubing, rails, etc. The catalogue comprises 230 pages and should be in the hands of all interested in such products.

BUSINESS NOTES.

AMERICA

THE NORTON COMPANY, Worcester, Mass. and Niagara Falls, N. Y., manufacturer of grinding wheels made of Alundum and other abrasive specialties, is to erect a large addition to its Worcester works. They will extend the building designated as Plant 2 about 200 feet in length by 111 feet in width, which will more than double the present capacity. This will be fully equipped with kilns, mixing machines, shaving machines, etc., so as to permit of a large increase in output.

REMOVAL NOTICE. Owing to great increase of business. The Bird-Archer Company has moved its offices from 209 Washington street to the new West Street Building, at 90 West street, New York. The sumptuously furnished offices of suite 15 on the 12th floor of that building, will be the future headquarters of this company. For the present the warehouse at 209 Washington street will be retained until completion of the new factory and laboratories now building in Jersey City, for the manufacture of the well-known Bird-Archer boiler compounds.

CLEVELAND AIR DRILLS, made by the Cleveland Pneumatic Tool Company, Cleveland, O., are stated by the manufacturer to contain fewer parts than any other four-cylinder drill in the market. The one piece, duplex rotating valve insures uniform piston action. The company makes this drill in five sizes reversible, and in five sizes non-reversible. The Cleveland company makes twenty styles and sizes of chipping hammers, and fifteen styles and sizes of riveting hammers, besides being the manufacturer of the well-known Bowes automatic hose coupling.

AT THE ANNUAL MEETING OF THE STOCKHOLDERS of the Joseph Dixon Crucible Company, Jersey City, N. J., the old board, consisting of Edward F. C. Young, John A. Walker, Edward L. Young, William Murray, George T. Smith, Joseph D. Bedle and George E. Long, was unanimously re-elected. The board of directors re-elected the former officers, namely E. F. C. Young, president; John A. Walker, vice-president and treasurer; George E. Long, secretary. Judge Joseph D. Bedle was also re-elected as counsel. The stockholders present expressed themselves as thoroughly satisfied with the management of the company by its officers. Of the total number, 7,345 shares, there were represented 6,460 shares.

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The freight steamer *Ocmulgee* built by the Fore River Shipbuilding Campany, Quincy, Mass., for the Brunswick Steamship Company, left the works of the contractors April 4th for delivery at New York. This is the fourth steamer delivered by the Fore River Shipbuilding Company for coastwise trade between New York and Brunswick, Ga. There is one more steamer to be built and delivered of the same type. The captain of the *Ocmulgee* is C. W. Mason.

The Hauck Burner at the Bath Iron Works.—A letter written by the Bath Iron Works, Ltd., on May 29, 1906, states: "We are using this burner in our copper shop and also for annnealing armor plates. We also use it for many jobs in the boiler shop, and other places on such work as drawing up the joints near the scarf where the lap of the boiler plates joins the head. The burner is very satisfactory indeed, and because of its intense heat it can be applied exactly where wanted. We would not be without it." This burner is made by the Oil Fuel Engine Company, 225 South street, New York.

The Alberger Pump Company, has been organized with offices at 95 Liberty street, New York city, to manufacture and sell centrifugal and turbine pumping machinery which the company states embodies novel and important improvements. According to the prospectus, this apparatus has been designed especially to meet the demand for a higher class of work and more economical performance than has heretofore been attained. The company is prepared to build centrifugal and turbine pumps of all capacities and for operation against any head either steam power or electrically given.

Recent contracts secured by the Power Specialty Company, 111 Broadway, New York city, include those from the following concerns for installations in various well known types of water tube boilers, the total installations amounting to about 25,000 horsepower: Newport News Shipbuilding & Dry Dock Company, Newport News, Va.; the West Virginia Pulp & Paper Company, Mechanicsville, N. Y., and Piedmont, W. Va.; Denver Gas & Electric Company; United States Naval Proving Ground, Indian Head, Md.; Virginia Fixture & Power Company, Richmond, Va.; Norfolk Navy Yard; Mineral Wells Electric System, Mineral Wells, Texas; also in about 9,000 horsepower of water tube boilers for the Capitol Buildings at Washington.

A movable cylinder coupling bolt forcer is made by the Watson-Stillman Company, 26 Cortlandt street, New York city. This tool is adapted to the requirements made necessary by the close proximity of a bulkhead to the small end of the bolts in the flanges of the shafts on board some of the United States naval vessels. The ram is the stationary part of this tool, a semi-circular chuck at the end of the ram allowing the bolt head sufficient room for its movements.

Roberts Boilers.—The National Lead Company, New York city, will shortly equip its steam lighter *National* with a No. 15 Roberts Safety Water Tube Boiler, made by the Roberts Safety Water Tube Boiler Company, 39 Cortlandt street, New York city. This latter company will also equip the steam lighter *Atlas* owned by Captain C. H. Doyen of Portland, Me., with a pair of its No. 12 boilers.

Round iron shears. Parties who have quantities of round iron rods and bolts to cut off to lengths should write to the Watson-Stillman Company, 26 Cortlandt street, New York, regarding these tools. "Do not hack the iron all round with a cold chisel, whack it over the anvil and then hammer the burr off both pieces, but use one of these shears, which, having the holes through castings and cutting knives made the size of the bar, cuts without making any burr, directly across the iron, and insuring that the piece will not be spread in shearing."

The Chicago branch of the Niles-Bement-Pond Company, 111 Broadway, New York city, has moved from 501 Monadnock Block to the company's new offices on the sixth floor of the Commercial National Bank Building, Clark and Adams street. The Pratt & Whitney Company, has abandoned its show rooms and offices at 46 South Canal street, and has combined its machinery sales department with that of the Niles-Bement-Pond Company. The show room and stock room of Pratt & Whitney small tools, and the small tools sales department is located on the ground floor of the new Plamondon Building, Clinton and Monroe streets, where a complete line of Pratt & Whitney small tools and gages will be carried in stock. Mr. George F. Mills, who has for several years looked after the interests of these companies in the Chicago territory, will continue as manager of the Chicago offices.

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THE OFFICE OF GEORGE P. HUTCHINS, technical advertising, has removed from 120 Liberty street, to 500 Fifth avenue, corner of Forty-second street, New York city.

THE WELIN QUADRANT DAVIT was approved by the Board of Supervising Inspectors of Steam Vessels at its meeting in January, and this fact is recorded in the last edition of the General Rules and Regulations published by the Department of Commerce and Labor. Capt. A. P. Lundin, 17 Battery Place, New York city, is the American manager for the Welin Quadrant Davit Company.

THE AMERICAN SHIP WINDLASS COMPANY, Providence, R. I., has been making windlasses, capstans, towing machines, hoisting engines, sailing ship outfits, anchors, and other auxiliary machinery for ships for fifty years. This company's catalogue should be in the hands of all interested in auxiliary ship machinery.

"THE QUICKER YOU DO YOUR DRILLING, reaming, tapping or grinding, the greater your profit." The Stow Flexible Shaft Company, Philadelphia, Pa., calls attention to this fact. Its flexible shaft is run by the General Electric Company's motor, and the company requests all interested to send for a free copy of its catalogue.

WATERTIGHT TELEPHONES, designed especially to meet the requirements of marine service and wherever telephones are located in exposed places, are manufactured by the Holtzer-Cabot Electric Company, Brookline, Mass. This company's systems are installed throughout the United States battleships *California, South Dakota, Milwaukee, Indiana* and *Connecticut.*

THE BIRD-ARCHER COMPANY, 90 West street, New York city, is building new factories in Jersey City for the manufacture of its boiler compound. The entire laboratory staff and manufacturing staff will be located in this factory, which with the improved facilities planned will be one of the largest and most completely equipped factories for feed water analysis and boiler compound manufacture in this country.

THE INDESTRUCTIBLE FIBER COMPANY has appointed Wendell & MacDuffie, 26 Cortlandt street, New York city, its sole selling agents for the United States in the marine and street and steam railway field. This company's fiber board is made up in different grades of thickness, and is stated to be a light and durable substitute for wood veneer. It will not blister, splinter or deteriorate when subjected to moisture. The company's catalogue, No. 9, will be sent free on request.

THE PITTSBURG OFFICE of Joseph T. Ryerson & Son, Chicago, Ill., has been moved from the Farmers' Bank Building, to 1072 and 1073 Frick Annex Building.

THE NEW YORK CITY OFFICE of Joseph T. Ryerson & Son, Chicago, Ill., has removed to Rooms 1611 and 1612 in the Arthur Building, 74 Broadway.

MR. KELLY, manager of the Foreign Department of the Bird-Archer Company, 90 West street, New York city, manufacturer of marine metallic boiler compound, has recently returned from an extended business trip to Cuba.

REMOVAL NOTICE.—The Norton Company and the Norton Grinding Company, Worcester, Mass., have removed their Chicago office to larger quarters at 48 South Canal street; telephone, Main-603.

MR. GARDNER CORNETT, of Providence, R. I., has recently been elected Vice President of the American Steam Gauge & Valve Manufacturing Company, his office being located at the headquarters of the company, 220 Camden street, Boston, Mass.

THE NEW STEAMER The Portland Company is building for the Winter Harbor Company, Philadelphia, Pa., will be equipped with a No. 15 boiler, made by the Roberts Safety Water Tube Boiler Company, 26 Cortlandt street, New York city.

THE STEAMSHIP *Columbia,* built by the New York Shipbuilding Company, Camden, N. J., for the Chesapeake Steamship Co., has been built under the inspection of the American Bureau of Shipping, 66 Beaver street, New York City, for classification in the Record of American and Foreign Shipping.

CHARLES H. GLASSER, formerly mechanical engineer of the Camel Company, Chicago, has taken a position with the American Steam Gauge & Valve Manufacturing Company of Boston, and will make his headquarters at the Chicago office. Mr. Glasser has had many years' experience in the mechanical field.

THE NATIONAL MOTOR BOAT SHOW, under the auspices of the National Association of Engine and Boat Manufacturers, 314 Madison avenue, New York city, will hold its next meeting at the Grand Central Palace, Forty-third street and Lexington avenue, New York city, December 7 to 14 inclusive, 1907. This Show will be held independently of any other organization, and the executive committee has obtained the services of Mr. Chester I. Campbell of Boston to manage it.

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BUSINESS NOTES.

GREAT BRITAIN.

Standard books on marine engineering are advertised on page 10 of this issue by Charles Griffin & Company, Ltd., 12 Exeter street, Strand, London, W. C. Engineers interested in the subject of the marine steam turbine will find two of the latest books on the subject listed in this advertisement.

Indents for machines, tools, metal goods, steamship, tramway, electrical and other supplies are executed on small commission against remittance by Messrs. Bromhead & Company, 33 Cannon street, London, licensed and registered patent agents and arbitrators for metals and machinery to the London Chamber of Arbitration.

Carbon dioxide refrigerating machinery for steamships of all kinds, also crank, tunnel and propeller shafts, pistons and connecting rods, rough, turned or finished, are made by Burmeister & Wain, Ltd., shipbuilders and engineers, 12 Coleman street, London, E. C. Our readers who will mention this magazine will receive circulars and descriptive matter free of charge.

The Phosphor Bronze Company, Limited, 87 Sumner street, Southwark, London, S. E., states that it is the sole maker of the following alloys: Phosphor Bronze, "Cog Wheel Brand" and "Vulcan Brand;" ingots, castings, plates, strip, bars, etc. Phosphor Tin and Phosphor Copper, "Cog Wheel Brand;" and the following white anti-friction metals: Plastic White Metal, Babbitt's Metal; "Phosphor" White Lining Metal, "White Ant" Metal, No. 1. Full particulars will be sent to readers mentioning this magazine.

The electric drilling machines, manufactured by the Light Electric Motor Company, Ltd., Ilford, Essex, can be supplied for any voltage up to 250, either direct or alternating current. They are guaranteed against structural defects for twelve months. The half-inch machine with screw feed is 11½ inches long and weighs 15 pounds. The 1¼-inch machine with automatic feed and side boring attachment is 18½ inches long and weighs 36 pounds. The same machine with automatic feed, but without side boring attachment, weighs 33 pounds. Circulars and full particulars will be sent to readers mentioning this magazine.

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AMERICA.

Coal handling machinery for coaling stations, shipyards, boiler rooms, etc., is the subject of a very complete 64-page catalogue, No. 072, issued by C. W. Hunt Company, West New Brighton, N. Y. Any one interested in this class of machinery should send for a copy of this catalogue which will be sent free to readers mentioning this magazine.

Centrifugal pumps for water works and high-pressure fire service are described and illustrated in a 40-page catalogue issued by R. D. Wood & Company, 400 Chestnut street, Philadelphia, Pa. This catalogue states that facts and figures not hitherto available to the general public are published, which are of great interest to users of any sort of pumping machinery.

A free copy of Zevy's "Engineers' Contract Book" will be sent to anyone of our readers mentioning this magazine, upon application to the Goheen Manufacturing Company, Canton, Ohio, and Dockhouse, Billiter street, London, E. C. This book contains contract forms and other blanks for pumping machinery, boilers, water pipe and special castings, power station buildings, cars and car equipment, electric light and power equipment, etc., together with forms of paint specifications calling for the use of various forms of paint made by the Goheen Manufacturing Company, for the protection of steel railroad and highway bridges, and other metal structural work of all kinds, from rust and corrosion.

"Chicago Giant" rock drills and kindred appliances are the subject of a booklet distributed among the trade by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. This booklet is printed in colors, and contains 96 pages of matter referring to rock drills. The text is well written and fully explanatory, and the booklet contains numerous half-tone engravings illustrating the "Chicago Giant" rock drills, together with views of parts. There are several pages devoted to rock drill steels, and an interesting description of the method of lubrication used in the "Chicago Giant." Several pages are devoted to Franklin air compressors, another of the company's products, followed by illustrations and descriptions of the "Baby Giant" or "One Man" rock drills, and scenes at work. Copies will be forwarded free upon request to any of our readers who will mention this magazine.

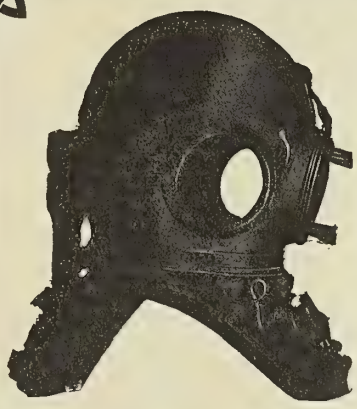
Electric propeller fans are described and illustrated in Bulletin No. 146 of the Engineering Series published by the B. F. Sturtevant Company, Hyde Park, Mass.

Cutters are described and illustrated by the usual handsome half-tones used by this company, in a folder issued by the Brown & Sharpe Manufacturing Company, Providence, R. I. The company states that these cutters are made to meet the demands of commercial milling, and that they are the result of an experience of forty-five years in their use and manufacture. The company makes 36 varieties and 3,700 sizes, so that it would seem that the most exacting requirements could easily be met through the use of this company's tools.

Oil and grease cups are described and illustrated in a catalogue, mailed by the D. T. Williams Valve Company, Cincinnati, Ohio. The prospectus states that in presenting this booklet to the trade the company feels confident that the variety of oil and grease cups mentioned will meet the requirements of any service, and that no difficulty will be experienced in finding a cup of the required design. Those interested should send for a free copy of this pamphlet.

The fifteenth annual report of the General Electric Company, Schenectady, N. Y., has just been issued in book form. The profits of the company for the year ending January 31, 1907, were $8,427,842.68. The company paid in dividends during the year $4,344,342, and, after writing off patents, franchises and goodwill account, which, on January 31, 1897, stood on the books of the company at $8,000,000, the total carried to the surplus account was $3,083,501.68, the total surplus January 31, 1907, being $15,110,796.77. The increase in shipments for the year amounted to about 40 percent.

Small tools are described in a very complete illustrated catalogue of 216 pages, just issued by Pratt & Whitney Company, 111 Broadway, New York City. This catalogue should be in the hands of all users of small tools, and a free copy will be sent to every one of our readers who mentions this magazine. Among the many varieties of tools illustrated and described in this catalogue, are taps and dies; die stock sets for bolt and pipe threading; milling cutters; slitting saws; Renshaw ratchet drills; lathe tools; twist drills; boiler punches; reamers; taper pins; also special tools of many descriptions made to order.



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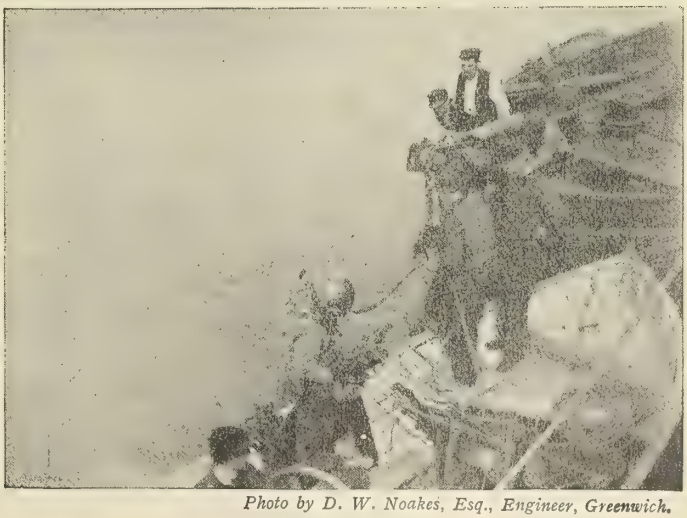
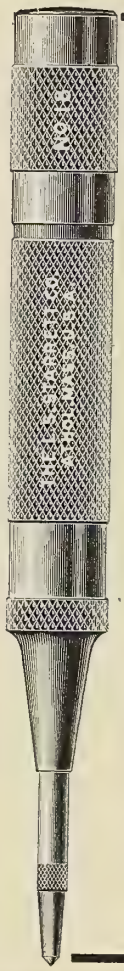


Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

"Alundum, the Latest and Best Abrasive," is described in an interesting pamphlet, issued by Norton Company, Worcester, Mass., a free copy of which will be sent to any reader mentioning this magazine, and which should be in the hands of every user of grinding machines of any nature. We quote from the pamphlet: "No more remarkable advance in mechanical lines has taken place in modern times than the development of grinding. The field of the old grindstone was limited, and the sharpening of edged tools was almost its only use. The introduction of the emery-wheel, however, made grinding a very important operation. The emery-wheel has not only rapidly replaced the grindstone, but in many operations the work of the cold-chisel, the lathe-tool, the file, and other steel-cutting tools is now done more efficiently by grinding. Before the invention of the electric furnace, artificial abrasives suitable for grinding-wheels were unknown. Wheel manufacturers necessarily depended upon natural products—chiefly corundum and emery. As emery occurs in considerable quantities in various parts of the world, it came to be recognized and used as the chief raw material for grinding-wheels and other products employed in grinding metals. On this account the modern grinding-wheel made of any abrasive is popularly known as the emery-wheel. The Norton Company, in the constant aim to develop more efficient grinding-wheels and materials, has during the past few years been operating an electric furnace plant at Niagara Falls, N. Y., in which has been developed and brought out a superior abrasive—Alundum. The invention of Alundum is the latest of the important electro-chemical inventions, which, during the past few years, have attracted so much attention and made Niagara Falls the center of electro-chemical industry in the United States. The introduction of Alundum in the field of grinding has been remarkably successful and rapid. The requisites sought for and attained in this abrasive are extreme hardness and sharpness, combined with uniformity and proper temper. So successful has been its development that Alundum has become known as the standard of high quality and uniformity as an abrasive. The process of making Alundum consists in taking the purest amorphous oxide of aluminum found in nature, and known as the mineral Bauxite, purifying and melting it in immense electric furnaces, the power for which is furnished by the Falls of Niagara. Upon cooling, this molten fluid solidifies and crystallizes in solid ingots of Alundum of great purity and uniformity throughout. Bauxite, the raw material from which Alundum is made, is the purest naturally-occurring amorphous oxide of aluminum known. This mineral was originally found at Baux, France, from which it derives its name, but purer forms are now obtainable in the United States. The best quality only is used in the manufacture of Alundum, and in its preparation practically all impurities are removed. The high grades of Bauxite used are of rare occurrence. The Norton Company, however, owns its own mines from which the purest grade is obtained. The Bauxite is heated in large preliminary heating furnaces to drive off the combined water, and is then melted directly in electric furnaces of special design. Bauxite was considered infusible until the invention of this process, no heat of combustion being able to melt it, the electric arc only being equal to this test. The temperature, at which the furnace charge melts in one homogeneous mass, is above the limit by which temperatures are measured by any means known to science, and is variously estimated between 6,000 and 7,000 degrees Fahrenheit. The operation of these furnaces and the composition of the molten bath is under the control of the furnace operative. Exact quality and uniformity, which is so important in steel manufacture, is fully as important in the manufacture of Alundum. The highest grades of steel are now being made in electric furnaces similar in design to the Alundum furnace, because impurities can be removed at the high temperatures obtained by the electric arc, and the quality of the molten bath uniformly maintained. In the Alundum furnace both the purity and uniformity of the Alundum is assured. Each step in the process is under the close supervision of expert chemists, who are constantly directing and following the work by careful analyses in Norton Company's chemical laboratory. The process of manufacturing Alundum is patented, being thoroughly protected by United States and Foreign patents, both in process and apparatus. These patents are owned and controlled by the Norton Company exclusively. Pure crystalline corundum, represented by the best sapphire or ruby, has always been the standard for No. 9 in the scale of hardness. This is readily scratched by Alundum; in fact, Alundum powder is used for cutting and drilling rubies and sapphires for watch jewels, etc. After numerous careful tests, comparing Alundum grains with other abrasive grains, including the diamond, Alundum is found to exceed 9½ in the scale of hardness where the diamond is 10. By temper is meant its strength of grain and the character of its fracture under grinding pressure. An Alundum grain is remarkably tough and will stand more



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A handsome tool, simply and strongly made.

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Send for Catalog No. 17 L of Fine Mechanical Tools.

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Athol, Mass., U. S. A.

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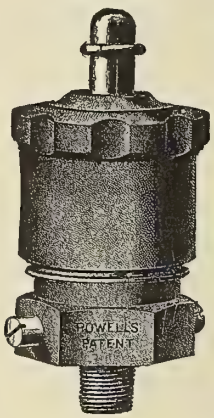

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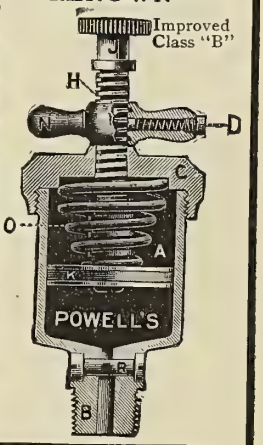

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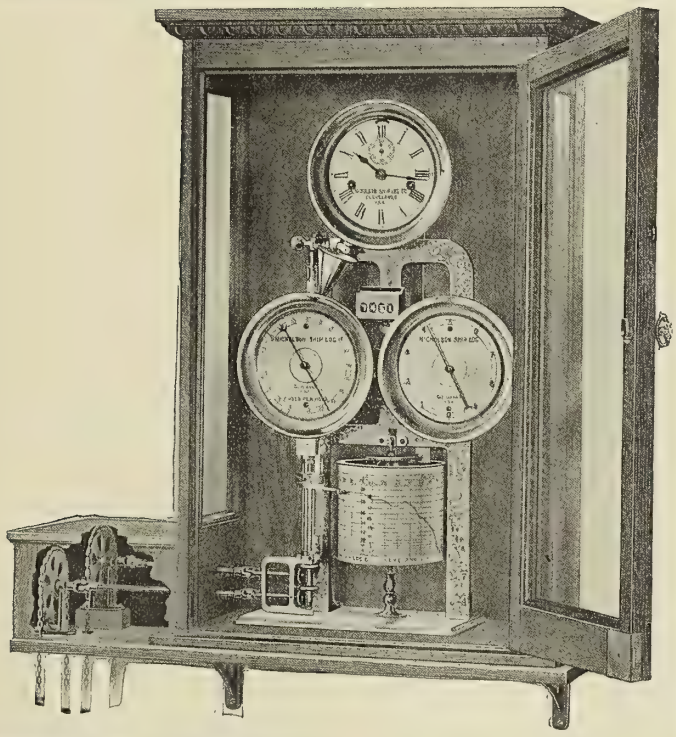

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It performs four separate and distinct operations viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge or where most convenient. Send for catalogue.

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crushing pressure before breaking than any other abrasive grain, but when it does break it breaks with a sharp, crisp fracture, giving a fresh, keen-cutting edge. This is a most important quality in an abrasive. Uniformity is also one of the most important requisites in an abrasive. The ability to duplicate a grinding-wheel is essential to efficient results from its use. In grinding-wheels the abrasive grain of a given size is bonded together to produce a certain grade or temper for a certain kind of work. This means that the bond which holds the grains together must be harder or softer according to the particular work required of the wheel. Different grades are required for different materials to be ground; cast iron, steel, brass, glass, bone, leather, wood and other substances demand wheels of special grade which must be duplicated to make the grinding operation continuously efficient. It is for this most important reason that great stress is placed on evenness in quality of the abrasive itself. Grades cannot be duplicated accurately without having a known and dependable factor in the uniformity of the material composing the wheel; and this requisite is to the highest degree found in Alundum. Alundum and the process of making it were awarded the grand prize at the St. Louis Exposition. The individuals responsible for its invention and development were honored with diplomas and medals for their part in this most notable, practical invention."

A free copy of the Monthly Stock List of boilers, engines, dynamos, motors and machinery will be sent to readers who will mention this magazine, by Wickes Bros., Saginaw, Mich.

Reflex water gages and other specialties for marine and stationary boilers, locomotives and automobiles, are made by the Jerguson Manufacturing Company, Pope Building, Boston, Mass. Readers of this magazine should write this company asking for catalogues and other descriptive matter.

Micrometers, English and metric, are one of the specialties made by L. S. Starrett Company, Athol, Mass., makers of fine mechanical tools of all kinds. Our readers interested in such tools should send for a free catalogue, No. 17-L, issued by this company.

A free copy of the Monthly Stock List, issued by the Bourne-Fuller Company, Cleveland, Ohio, will be sent to all readers mentioning this magazine. Every user of iron, steel, pig iron, and coke in any form, should have a copy of this list. This company makes a specialty of "Climax" rivets for boilers, bridges, ships, etc., which it states are made from selected stock and are fully guaranteed. Close mill connections enable the company to furnish stock direct from the mills when desired.

"Why Waste Coal?" is the title of a folder distributed by the Sarco Fuel Saving & Engineering Company, 90 West street, New York City. Following is an extract from a letter recently received by this company: "We thought we knew a thing or two about combustion and furnace economy before we got your recorder, but now we are free to say that our anger, at ourselves, as we think of all the coal we have thrown away in the past, is simply beyond expressing in decent English."

Crane specialties, such as valves, fittings and appliances for every purpose and all pressures, are described in a very complete 98-page catalogue, issued by Crane Company, Chicago, Ill. In spite of the size of this volume the statement is made that it is presented merely as an introduction to briefly review and illustrate some of the company's more important lines of valves, fittings and special appliances. The company states that it manufactures more than ten thousand articles in the line of valves, fittings and specialties for use with steam, water, gas, oil, etc. A free copy of this booklet will be forwarded to all readers who mention this magazine.

FOR SALE

THE OLD ESTABLISHED BUSINESS of J. H. Paine & Son, builders of marine engines, machinery and propeller wheels. Prefer to sell all complete, but will sell propeller patterns, engine drawings and patterns or machinery and tools separate. J. H. Paine & Son, Noank, Conn.

TRADE PUBLICATIONS.

GREAT BRITAIN

Petrol motors, reversing propellers and complete marine equipment ready to install in hulls from 12 to 25 feet, designed and manufactured by J. Smart & Brown, Erith, Kent, are described in circulars this firm is distributing.

Grab transporters are described and handsomely illustrated in a supplement to the general catalogue issued by the Temperley Transporter Company, consulting engineers and naval architects, 72 Bishopsgate Street Within, London, E. C. Since the publication of its last general catalogue, this company has introduced in its transporters several important improvements, and has also brought out a new type especially adapted to the rapid handling of material in bulk by means of grabs. These new transporters are designed in various forms capable of handling from 50 to 200 tons per hour. Apart from the improved structural design of these new machines, the principal feature is stated to be the special and simple form, and the high efficiency, by means of which the operations of hoisting or lowering, and that of transporting may be carried on separately or together, without either operation in any way influencing or interfering with the other. The load may thus be carried along the shortest trajectory from the point where it is picked up, to that where it is delivered, thereby effecting a considerable saving of time. The operation of the plant is stated to be extremely simple and to be easily controlled at a high rate of duty by one man.

"King" boats and "King" engines are the subject of catalogues issued by J. King & Co., 119-125 Three Colt street, Limehouse, London, E., and Burnham-on-Crouch. The catalogue states that the best recommendation this firm can offer is the fact that it has been established since 1826, and that it was among the pioneer firms in the introduction of marine motors, and since their inception, has closely studied the market and its requirements, so that it is in position to offer the best and most suitable goods. This firm is contractor to the Admiralty, the Crown Agents, the London County Council, the Thames Conservancy, the Port of London Sanitary Authority, Messrs. Thornycroft, Atlantic Transport Company, Shaw, Savill & Albion Company, and New Zealand Shipping Co. The company sends its goods to all parts of the United Kingdom, France, Germany, Denmark, Spain, Portugal, Egypt, Sierra Leone, Cape Colony, Uganda, West Indies, South America, Australia, New Zealand, Borneo and India. The greatest attention is also paid to the design and construction of "King" launches, and the company states that in the combination of lightness and strength it has produced boats unrivaled for easy working.

An Automatic "Wave Subduer," for spreading oil on the sea in stormy weather is described and illustrated in circulars published by Loveridge, Ltd., Docks, Cardiff. Many instances are mentioned in which this device has been found of great value to steamers equipped with it, and a long list of such vessels is given. Captain J. R. Durant, of the steamship *Knight Commander,* plying between London and Baltimore, states: "One reason why the steamer *Knight Commander* has carried her cattle safely for the past fourteen months from Baltimore to London without any loss, is because she is fitted with Captain C. C. Couves' wave-subduer for distributing oil on the sea in stormy weather. I can strongly recommend this inexpensive and ingenious contrivance to all steamers for over-sea towing, as it is simply invaluable. Some time ago I towed a steamer with a broken shaft 360 miles to the northwest into Halifax harbor, when I fully proved the value of the Couves' wave-subduer." Another instance, showing the value of this device, was when the London steamer *Sandfield* was recently enabled in the Bay of Biscay, in a very heavy sea, to approach so close to the disabled London steamer *Fenchurch* that hawsers could be passed and made fast, so that the *Fenchurch* was taken in tow and brought safely to Plymouth.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

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Free, Our Practical Pamphlets :

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
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We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

The "Incanto" system of acetylene gas lighting is described and illustrated in the sixth edition of a catalogue issued by Thorn & Hoddle Acetylene Company, Ltd., 151 Victoria street, Westminster, S. W. One of the instances given in this catalogue of the use of acetylene gas on board ship is that of the steam yacht *Nykr,* owned by E. Campbell Muir, Esq. A letter from Mr. Muir is quoted, in which he says in part: "Although my yacht has done 3,800 miles this season, the gas has never once failed. It could not have worked better. Your standard type yacht generator does perfectly for sea work when the boat is rolling in a rough sea." The company states that all the statements and data contained in the catalogue are the result of actual experience; that the company's business is entirely confined to the acetylene industry; and that it is accordingly vital that its productions should be the best possible to be made. A copy of a letter is also printed from Professor Vivian B. Lewes, Gas Examiner to the Corporation of the City of London, and a recognized authority upon acetylene. This certificate states that as a result of tests made, the professor certifies that the generators tested worked automatically in a perfectly satisfactory manner without any sign of overheating, while the yield of gas was from 95 to 99 percent of that possible to be obtained from the carbide used, and it was delivered to the generators well washed and cooled. There was a constant pressure at the burners of 3 inches, and the gas pressure in other parts of the generator did not exceed 11 inches.

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It is a great MARINE FAVORITE

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RELIABLE—SATISFACTORY—EFFICIENT

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Ailsa Craig Motors are described and illustrated in a catalogue issued by the Ailsa Craig Motor Company, Strand-on-the-Green, Chiswick, London, W. This catalogue states that the first feature you notice in all Ailsa Craig motors is that the crank shaft is set in advance of the cylinder axis, this arrangement being the outcome of careful mathematical calculation and a series of practical experiments carried out with the utmost care; the advantage being that during the maximum effort of the working stroke the connecting rod is practically vertical and parallel with the sides of the cylinder, thus giving a direct thrust from the piston to the crank shaft without side thrust on the cylinder walls. The effect of this is seen in the power, flexibility and smooth and silent running of the engines. A mechanical advantage is also obtained at the end of the compression stroke. Many other advantages are claimed for this company's motors which are of the four-cycle type.

Portable steam pumps are described and illustrated in a very complete 70-page catalogue published by Merryweather & Sons, Ltd., Greenwich Road, London, S. E. These steam pumps are stated to be especially suitable for use on docks, harbors, etc., for the protection of shipping and waterside property against fire, and for salvage purposes. The light weight of the pump (6½ cwt.), allows it to be readily placed in a boat and taken out to a vessel when required. These pumps, so the catalogue states, recently proved their usefulness by saving an ironclad of a foreign navy from sinking at her moorings in port. The fleet was at anchor in the harbor and one large vessel was being cleared out. By some accident the sea cock was left open, and before the mistake was discovered over 600 tons of water had got into the hold. The open cock was covered and could not be closed, and the ironclad was sinking lower in the water every minute. The admiral was immediately informed of the danger, and by his instructions every vessel having a Merryweather "Valiant" steam pump was signalled to send it to the sinking vessel. This was done, and in a few minutes half a dozen of these pumps were pumping at full speed. They soon gained on the water and enabled the sea cock to be closed. Of the many illustrations in this catalogue, one shows pile driving with the water jet by means of Merryweather's plant at Blackpool. A free copy of this catalogue will be sent to readers mentioning this magazine, and one should be in the hands of every person interested in the subject.

Boiler and pipe coverings, oils, etc., are the subject of a catalogue distributed by Matthew Keenan & Company, Ltd., Tredegar Road, Bow, London, E. This catalogue states that one of the problems always present with users of steam is economy in fuel; that the accepted method of covering both boilers and steam pipes with a non-conducting material is no doubt the best answer, but only in so far as the material is efficient and lasting. "By using Keenan's non-conducting vegetable pulp the maximum result is secured at minimum cost."

The Seal Motor Company, Oil Mill Lane, Hammersmith, states in the introduction to its catalogue, "In issuing a new and enlarged edition of our catalogue of oil engines for marine and stationary purposes, we would emphasize the fact that our marine engines have long ago passed the experimental stage, and have taken their place in the front rank of oil engines for marine purposes. We supply the complete equipment ready for fitting in the customer's own hulls, but can, if required, supply hulls both in wood and steel. Our engines are designed for paraffin, but can be used for petrol or benzine with equally good results. With regard to our reversible propellers it is sufficient to say that they are built of gun metal throughout and are carefully designed and finished to give the highest efficiency."

Water tube boilers are the subject of an illustrated catalogue of forty pages, published by J. Samuel White & Company, Ltd., East Cowes, Isle of Wight. This company since 1885 has been a maker and user of water tube boilers in connection with high speed vessels where the conditions of working are severe. The type now made (White-Forster patent) has been evolved with the idea of meeting such conditions fully and economically, and at the same time embodying the features necessary to efficiency and long life, viz.: simplicity in design and construction; facility for inspection, cleaning and repair; ample space in proportion to the heating surface; all parts of mild steel; constructive details based on established boilermakers' practice. An important feature of the White-Forster boiler is that any single tube may be removed and renewed in half an hour. The catalogue gives numerous illustrations of the inside and outside of the boiler, and a concise description of the construction and general features. Also the result of tests for showing the steam efficiency, and photographs of many vessels equipped with this company's boilers, which are in use in the navies of Great Britain, the United States, Japan, Russia, Italy, Austria and Chile.

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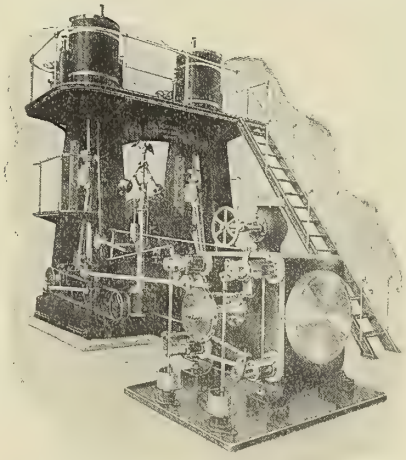
STRONG MATERIALS

BEST WORKMANSHIP

HIGHEST EFFICIENCY



MAXIMUM EFFICIENCY FOR MINIMUM OPERATING AND REPAIR EXPENSE GUARANTEED

"Great Lakes" Refrigerating Machine
Write for Catalogue "B"

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DETROIT MICHIGAN

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Secretary and Treasurer

"Grateless Underfeed Stokers," are the subject of an illustrated catalogue published by Erith's Engineering Company, Ltd., 70 Gracechurch street, London. This catalogue states that 4,000 successful installations attest the fact that Erith's grateless stokers give the utmost economy practicable by any method of firing, at all rates of capacity, the result showing a net saving that usually repays the entire investment in from one to two years after paying all charges.

Floating coal depots are described and handsomely illustrated in a supplement to the general catalogue of the Temperley Transporter Company, consulting engineers and naval architects, 72 Bishopsgate Street Within, London, E. C. The floating coal depot illustrated in this supplement is of 12,000 tons capacity, and was designed and equipped for the Admiralty for storing large quantities of coal afloat; for rapidly filling it into bags without shoveling; and for discharging it on to war vessels. The catalogue states that the apparently insuperable difficulty hitherto experienced of getting Welsh steam coal to run or flow through openings in the bottom or sides of hoppers, owing to large lumps of coal bridging over and blocking the opening when under pressure, is entirely solved by this system.

Heating and Ventilating and ship ventilation, is described in a handsomely printed and illustrated catalogue issued bv Davidson & Company, Ltd., Belfast. This publication is devoted to Sirocco apparatus and its use for heating and ventilating, especially on board ship. The catalogue states that the heating and ventilation of ships presents a number of difficulties which are not encountered in designing plants for buildings. Sirocco centrifugal fans are extensively used on shipboard and they occupy very little space. They may be direct coupled to electric motors. These fans are of the universal discharge type; that is to say, they may be adjusted to blow in any desired direction. The illustrations on pages 30 and 31 are particularly interesting, showing as they do the different uses to which small fan units can be put. Sirocco fans are much employed for ventilating pantries, store-rooms and stokeholds, as well as for ventilating the passenger quarters on board ship; also for forced draft, both in the navy and mercantile marine. Among the vessels which have been equipped with this system of ventilation are H. M. S. *Dreadnought,* H. I. M. S. *Preussen,* S. S. *Virginian,* and a large number of other well known ships, including the White Star liners *Cedric* and *Celtic,* and the American liner *St. Paul.*

BUSINESS NOTES.

AMERICA

A NEW BAILWAY DRY-DOCK.—H. I. Crandall & Son Company, East Boston, Mass., will build a 2,000-ton railway dry-dock for Richard T. Green, Chelsea, Mass. This dock will be especially designed for docking heavy dredges, as well as all other craft coming within its capacity.

FALLS HOLLOW STAYBOLTS IN ITALY.—The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has just received a large order for its hollow staybolt bars from the Italian government State Railways, with a view to the adoption of this company's hollow staybolts on the entire Italian railway system.

SMITH & ROBINSON, naval architects and marine engineers, Philadelphia, Pa., announce the appointment of their Mr. Smith as surveyor to the British Corporation Registry for the Port and District of Philadelphia. Two small steamers for South America are about to be built under the Corporation Rules at the yard of Pusey & Jones Co., Wilmington, Del. The firm is now representing owners in damage surveys and settlements and also has considerable new work to design and construct.

SUBMARINE SIGNALING.—An interesting experiment in submarine signaling has been completed in the waters of Boston harbor near Boston light. In a little cottage at Point Allerton is an electric generator operated by a 2½ horsepower Mietz & Weiss oil engine. From this cottage a cable leads to an iron tripod, standing on the bottom of the ocean 70 feet below the surface of the water, supporting a bell weighing 220 pounds; its clapper being actuated by powerful magnets. This station has been in operation since March 30 last; the bell striking continuously at the rate of about twenty-two blows per minute. The endurance test was completed on May 16, 1907, the total number of strokes delivered were 1,032,930. During that period neither the cable, the bell nor the oil engine required overhauling, or any attention whatever. The sound of this bell has been plainly heard on board a ship, which was equipped with the receiving appartus, five miles away. The Canadian government is equipping the coast with a large number of these stations, and it is claimed that all steamers which are equipped with the apparatus can be kept to their course in rough weather or fog. The electric bell now in use was designed by Edward C. Wood, of Somerville, Master Mechanic of the Submarine Signal Company, Boston, Mass.

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The effect of the temperature of gases upon the Operation of Mechanical Draft.—"Inasmuch as the fan of an induced mechanical draft apparatus handles the hot gases instead of the cool air for combustion, the fan acquires a temperature almost equal to that of the gases, and as this temperature may be as high as 600 degrees, or even higher, it is necessary to use water cooled bearings for it. Further, as the volume of the gases increases with the temperature, the higher the temperature the greater is the volume of the gases which the fan must handle; and for a fan with a wheel of a given diameter this means a higher speed of rotation and more power to drive the fan. The volume of the gases resulting from the combustion of a given quantity of coal when heated to a temperature of about 550 degrees, quite a common temperature for chimney gases, is about twice as great as the volume of air supplied to the furnace when at a temperature of about 80 degrees. Whatever, then, reduces the temperature of the gases before they enter the fan, reduces the volume per pound of the gases, and therefore increases the weight of gases which the fan can handle when running at a given speed, because the capacity of a fan, like that of a pump depends upon its volumetric displacement per unit of time. The greater the weight of gases handled per minute the greater is the weight of coal burned per hour, and hence the greater the capacity of the boiler plant as a steam producer. In other words, cooling the gases before they reach the fan not only increases the draft for a given speed of the fan, but also increases the amount of coal which may be burned per hour, and hence increases the capacity of the plant as a steam producer, and does not materially change the power required to run the fan. And if the gases can be cooled by increasing the heating surface of the boilers or by the use of an economizer or an air heater, the heat taken from the gases during the cooling process is saved and the steam generated by the plant is obtained more economically. With a chimney the case is very different, since a reduction in the temperature of the gases entering the chimney means a reduction in the draft as well as a reduction in the volume of gases flowing out of the chimney. If the reduction in the temperature be great, the draft may not be great enough to overcome the friction of the air through the fire and the friction of the hot gases through the various flues and the chimney. The result is that because of the reduction of the draft and in spite of the less volume of gases to be handled by the chimney, the amount of coal that can be burned in the furnace may be, and is very likely to be, unless the draft is the first place was greater than necessary, less after the gases are cooled than before. This means, of course, a decrease in the capacity of the whole plant as a steam producer, and may necessitate an increase in the whole plant in order that it may generate the required amount of steam per hour. And the interest on the first cost and the depreciation and repairs on the addition to the plant may more than offset the saving made by cooling the gases. Of course, when the chimney is high enough to give the required draft with the lower temperature of the gases, cooling them brings about a saving in the operation of the plant by reducing the quantity of coal necessary to be burned in order to evaporate the required amount of water."—From "Mechanical Draft," by J. H. Kinealy. The B. F. Sturtevant Co., Hyde Park, Mass., makes a specialty of mechanical draft.

The steam yacht *Venture*, owned by C. E. Simmons, Nyack, N. Y., has been equipped with Roberts water tube boilers, made by the Roberts Safety Water Tube Boiler Company, 39 Cortlandt street, New York City.

Fire at the plant of the Falls Hollow Staybolt Company.—On May 9 a slight fire damaged the plant of the Falls Hollow Staybolt Company, Cuyahoga Falls, O., but the company states that the damage was slight and that the filling of orders will not be delayed. The plant is now running night and day as heretofore.

The Lunkenheimer Company, Cincinnati, O., has established its eastern office and warehouse in the newly-erected five-story building at 66-68 Fulton street, New York City. Some idea of the stock carried at this warehouse may be obtained by mentioning some of the principal goods made by the company. There are valves for steam, water, gas and oil; lubricating devices for ordinary gravity and pressure systems, including cylinder and bearing lubrication; and a complete stock of grease cups and mechanical lubricators for high-power motor boats and automobiles; likewise a large line of especially-designed cocks and fittings for gasoline piping, which the company believes is the largest assortment of the kind in New York. In valves there is a stock of bronze goods for high-pressure marine service, as large as 8 inches diameter up to 300 pounds pressure per square inch. There is also a complete line of lubricating devices for gas engines and air compressors.

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The United States Consul at Kobe, Japan, states that there are no persons at that place conducting an exclusive diving apparatus business, nor does there seem to be any manufacturer of diving apparatus in the vicinity. He states that if the Diet passes the requisite appropriation for the harbor improvements at Kobe and Osaka, there will be a large sum of money spent thereon during the next six years, which will necessarily demand considerable diving apparatus.

A non-combustible fiber board adapted for steamboat partitions and panels.—"It is inevitable that the public mind should be largely occupied with the question of safety. The daily press has not been slow to urge the necessity of greater care in the construction of public conveyances, ashore and afloat. The too frequent catastrophies in which fire has added to other horrors, as in the case of the *Slocum* disaster, have led to experiments with the view of eliminating as far as possible the use of combustible materials in the construction of steamboats and railway cars. These experiments have been brought to a successful issue by the production of a new non-combustible fiber board, known as Kantlite, which seems to go far towards solving the problem. It is admirably adapted for steamboat partitions and panels. Being impervious to the effects of moisture, it will not blister nor warp. It is light, strong and durable and is economical to decorate and finish. This board is non-combustible, and although under tremendous heat, such as that applied in tests, it will carbonize, it will not retain a flame, and its fire-proofing qualities last almost indefinitely. In speaking of the substance, Mr. McDuffie, of Wendell & McDuffie, 26 Cortlandt street, New York City, said in a recent interview: 'Our indestructible fiber called Kantlite is non-combustible. We have tried for years to get hold of a non-combustible imitation of wood that would be within the price of ordinary wood veneer, and which also could be light in weight and take a good finish. We have found it, and it is safe to say there would have been no *Slocum* disaster if this material had been used for the cabin partitions. It may further be pointed out that Kantlite will not splinter, so that in cases of accident without fire the large percentage of injury attributable to the splintering of wood work is absolutely eliminated where Kantlite is employed. In price it is only slightly in excess of that asked for soft wood veneer. It has 85 percent of the strength of hard wood of the same thickness, and can be made ¼-inch scant in thickness for marine work, where every possible saving in weight is essential.'"

Johns-Manville Packing on the Chitose.—The Japanese cruiser *Chitose,* which was one of the squadron visiting New York harbor during the month of May, was built at the Union Iron Works, about ten years ago. Her keel was laid May 3, 1897, and she was launched on the 22d of the following January. Her twin-screw triple expansion engines are capable of developing an aggregate of 15,500 horsepower, which give the ship an average speed of 22.87 knots, and a maximum speed of 23.76 knots. All of the steam piping, as well as the boilers on this vessel, are covered with asbestos fire felt packing, manufactured by the H. W. Johns-Manville Company, 100 William street, New York. An inspection of this packing while the ship was in port, showed it to be, so far as could be judged, in thoroughly good condition, in spite of her nine years of service and her active participation in the Russo-Japanese war. The lagging on the boilers extends from the angle iron at the upper edge of both saddles on one side of the boiler to the corresponding angle iron on the other side, thus covering both sides of the top, but not the bottom. The percentage of cylindrical area covered is thus about 75.

BUSINESS NOTES.

GREAT BRITAIN.

The Crompton ash hoist, with self-tipping bucket, has been installed on the steamers *Shira* and *Harewood.*

Vickers, Sons & Maxim, Ltd., Barrow-in-Furness, have received an order from the London & North-western Railway Company for a 300-foot twin screw vessel, to ply between Holyhead and Dublin.

Contraflo condensers, made by Richardsons, Westgarth & Company, Hartlepool, are in use to the extent of 250,000 square feet. High vacua, minimum circulating water and high thermal efficiency are stated to be features of these condensers.

Messrs. R. & W. Hawthorn, Leslie & Company, engineers and shipbuilders, Newcastle-on-Tyne, have appointed Mr. Joseph Willet McCulloch their agent in London, and have established their London office at Sussex Place House, 87-A and 88-A Leadenhall street, E. C.

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Two new direct steamship services in connection with the export trade in Russian butter have been opened at Windau, one to Stettin and the other to Hamburg with weekly departures.

The royal yacht *Victoria and Albert*, H. M. S. *Antrim, Harrier, Dryad* and *Spanker* are among the many vessels recently equipped with submarine signals made by the Submarine Signal Company, 29 and 30 Charing Cross, London, S. W., and 88 Broad street, Boston, Mass.

Dornoch Shipping Company, Ltd., has been registered with a capital of £5,000, in £5 shares. Objects, to carry on the business of shipowners, shipping, forwarding and general agents, freight contractors, carriers by land or water, warehousemen, wharfingers, lightermen, etc. No initial public issue.

The new 25,000-ton White Star liner, *Adriatic* has taken her place on the Atlantic route. We notice that the high pressure rods and valve spindles are packed with the Beldam Packing and Rubber Co.'s patent Excelsior metallic rings, which are being so extensively adopted on the new liners being built.

Holzapfel's Compositions Co., Ltd., advise us that their compositions have been supplied during the year 1906 to more than 5,150 vessels, equal to upwards of 11,638,264 tons gross, and in addition thereto, large quantities of composition have been supplied to foreign governments, steamship companies and export merchants, from whom no returns of ships coated have been received.

At a special meeting of the Southampton Harbor Board recently, it was decided to carry out the dredging of a deep water channel to a depth of 32 feet at their cost. The London & Southwestern Railway had refused to pay half the cost (estimated at £50,000), but had offered to lend the money to the Board at 3 percent.

Under the title of "Svensk Oestasiatisk Kompagnie, a new company has been established at Stockholm, for running a regular line of steamers between Sweden and Eastern Asia, and eventually, if possible, for carrying on commercial and industrial operations. The minimum capital is fixed at 3,000,000 kronor and the maximum at 6,000,000 kronor. The company will work in conjunction with the Oestasiatsk Kompagnie, of Copenhagen.

Merlin Carrying and Salvage Company, Ltd., has been registered with a capital of £3,000, in £1 shares. Objects, to carry on the business of steamship and tug owners and managers, shippers, barge owners, tug, ship, barge and boat builders and fitters, salvage contractors, dredgers, lightermen, wharfingers, dockowners, harbor masters, freight contractors, carriers by land and water, etc. No initial public issue. Registered office, Preston-on-Tees, Durham.

The London and Glasgow Engineering and Iron Shipbuilding Co. is making considerable additions to its works at Finniesston. Contracts have already been let for the erection of a new boiler shop, 200 feet long, in two bays of 60 feet wide, with crane girders 54 feet 9 inches to the centres of the crane rails, and with a floor level to the bottom of the roof truss of 60 feet. In each bay there are to be cranes dealing with weights up to 120 tons. The shops will be equipped with tools of the most modern description. The new extensions have been placed with Sir William Arrol & Co., Dalmarnock Iron Works.

J. W. Brooke & Company, Ltd., Lowestoft, report that its marine motor business so far this year has been extremely brisk. The company's output of marine motors and boats for the first quarter of 1907 was £1,000 in excess of the company's entire business for 1906. The export business particularly has shown a most gratifying increase. At the present time the company has on its book orders for motors for South America, New Zealand, Australia, Holland, Siam and Great Britain. The factory, to meet this increasing demand, has been extensively enlarged, and great quantities of new labor-saving machinery have been put in. Brooke & Company state that the whole of their motor cylinders are ground absolutely true with special planatory cylinder grinding machines, and the company's practice is to construct these motors entirely in jigs, so that they are absolutely interchangeable.

One of the principal features of Lowestoft's progress during the past few years has been the progress made by J. W. Brooke & Company, Ltd., makers of Brooke marine motors and auto cars. The works of this company have been repeatedly extended and enlarged, and further extensions are now being made. The new buildings of this company are of steel with concrete walls, durable, fire-proof and of great strength. The works have been remodeled in every part. Machines no longer capable of doing the fine operations required in motor construction have been scrapped, and new tools erected of the latest and best type. This firm has agencies in the Argentine Republic, India, Ceylon, Russia, Holland, Japan, New Zealand and Straights Settlements, while at Freemantle, Australia, it keeps on hand a large stock of marine motors to insure prompt delivery in that part of the world.

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AMERICA.

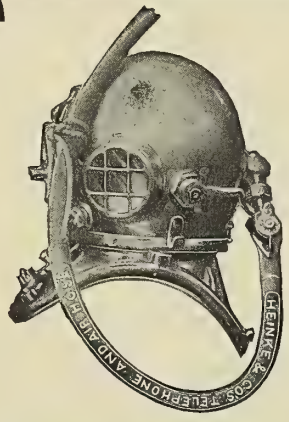
"Cambria Steel" is the title of a handsomely printed cloth bound handbook of 468 pages, published by the Cambria Steel Company, Philadelphia, Pa. This company owns its iron and coal mines, manufactures its own coke and metal and can produce about three thousand tons per day of finished steel in the shape of billets, slabs, rails, fastenings, bars, forgings, beams, angles, zees, tees, plates, flats, rounds, squares, axles, merchant steel, agricultural implement steel, etc. The Cambria Iron Company and its lessee, the Cambria Steel Company, have been producing iron and steel for more than fifty years. This handbook is made up of useful tables, rules, data and formulae for the use of engineers, architects, builders and mechanics, and has been prepared and compiled by George E. Thackray, C. E., the structural engineer of the Cambria Steel Company. Price, $1.00.

Pneumatic Hammer Catalogue, No. 8, describing and illustrating inertia valve pneumatic hammers for riveting, calking and chipping, is issued by the Chester B. Albree Iron Works Company, Allegheny, Pa. The catalogue states that this company's pneumatic hammers are made on an entirely new principle. They are operated by a small valve moving longitudinally inside of the piston. The action of the valve is effected directly by the motion of the piston itself, and reversal of stroke does not occur until after the blow. Extreme simplicity is claimed for this hammer. All parts are absolutely interchangeable and are made of the best materials in special jigs by special machinery. The automatic stop makes it impossible, so the company states, to run the hammer unless the tool is in working position. The maintenance cost, due to the breakage of parts, caused by the piston striking the front end of cylinder, is obviated in the Albree hammer, according to the manufacturer, and, at the same time, the automatic stop prevents injury to employees by the tool or die being shot across the shop 50 or 100 feet. Abuse by cutting down the piston length is also said to be rendered impossible. A number of other new features and advantages are claimed.

The prism binoculars made by Keuffel & Esser Company, 127 Fulton street, New York city, are stated to represent the latest progress in optics. The prism is totally reflecting with no cement or silvered surfaces. There is only one prism in each tube, making a relative displacement impossible. These binoculars are made in seven sizes.

Lunkenheimer generator valves are the subject of an illustrated catalogue distributed by Lunkenheimer Company, Cincinnati, Ohio. This booklet illustrates and describes the various types of Lunkenheimer generator valves which were designed to meet various requirements both as to price and construction. These valves are not intended to take the place of the regular inlet valve on engines of the four-cycle type, but on engines of the two-cycle type they take the place of the usual check valve on the crank case. Special attention has been paid to make the disks light and strong, and to increase the seat openings, the area of which is considerably in excess of the area of the inlet. By this construction, it is not necessary that the disk be raised very far off its seat to obtain the required volume of mixture. Hence, when the valve closes, its travel being but a trifle, pounding is reduced to a minimum. These valves may be reground.

Forged steel pipe flanges are described in a handsomely illustrated catalogue of 96 pages, published by the American Spiral Pipe Works, post office box 485, Chicago, Ill. The object of this catalogue is to place before the public not only a complete list of the standard flanges, and a partial list of the various forgings this company manufactures, but also a short description of the more important features of the forged steel flange. The company states that it is the pioneer manufacturer of improved forged and rolled steel flanges; that it has given years of time and study to the principles involved, and is enabled to produce a perfect flange that will in every way stand the severest tests; that the extremely high pressures of today, and the use of superheated steam have produced strains unknown before in the piping system, and that the use of cast iron flanges in the past has demonstrated the fact that they are wholly unfit for modern conditions; and that they give way at the most unexpected times. The company states that the remedy is found in the use of forged steel flanges which expand evenly with the pipe, and stand the continuous strains and vibrations.



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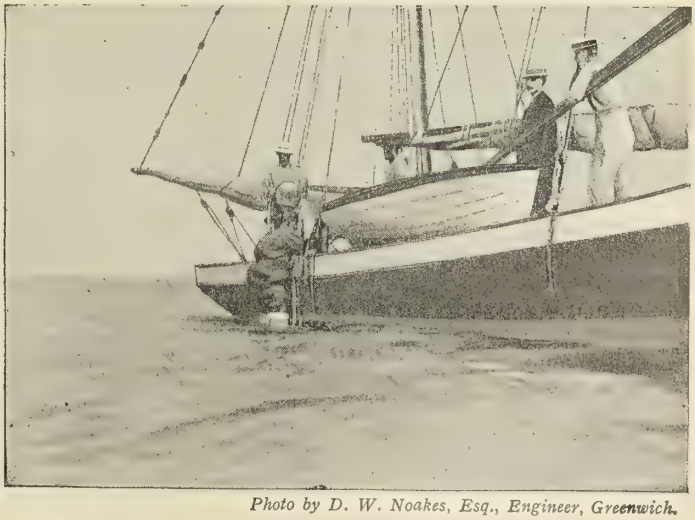


Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

"Reducing Pressure Valves" is an article by W. H. Wakeman, the first chapter of which appears in the May issue of *Graphite*, published by the Joseph Dixon Crucible Company, Jersey City, N. J. All of our readers will be put upon the free mailing list of *Graphite* upon application.

Circular 29, issued by Crane Company, Chicago, Ill., is devoted to the description of Klingerit gaskets, which are now used by Crane Company on all bonnet flanges, stuffing box and by-pass valve joints; all extra heavy gate and load valves, whether for high-pressure, saturated or superheated steam; and when gaskets are ordered with extra heavy flanged valves and extra heavy flanged fittings to be complete with companion flanges, bolts, etc. For use on superheated steam, the company furnishes Klingerit gaskets unless otherwise specified.

Morehead steam traps and boiler feed are the subject of an illustrated 40-page catalogue issued by Morehead Manufacturing Company, Detroit, Mich. The Morehead tilting steam traps are designed for removing condensation from steam systems, and the introduction to the catalogue states that it is assumed in the preparation of the booklet, that the reader is either having condensation troubles, or that in his efforts to obtain greater economy in the handling of steam he is endeavoring to obtain a reliable steam trap suitable for his particular purpose.

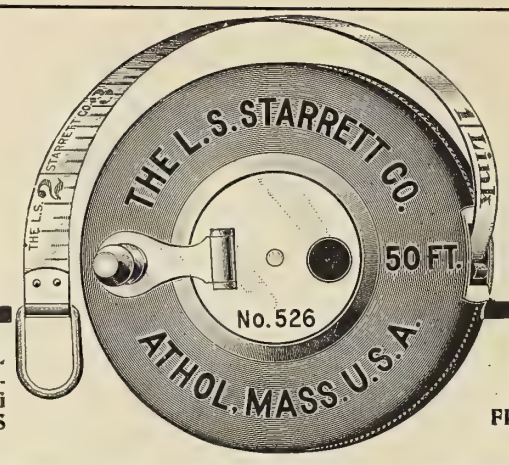
An illustrated price list of nautical instruments has just been published by Keuffel & Esser Company, 127 Fulton street, New York city, and should be in the hands of all users of such instruments. Among the many illustrations are those of sextants and octants of various sizes and types; artificial horizon binnacles of many kinds; a pelorus with an illuminated dial; magnetic sets; liquid and dry compasses of several kinds; barometers; barographs; binoculars; magnifying glasses; metallic tapes; navigators' dividers; captains' reading glass cases; drawing instruments, etc.

New Era metallic packing is the subject of folders published by the New Era Metallic Packing Mfg. Company, 784 Sixth avenue, New York city. This packing is designed for use either with steam, water or ammonia. It is a composition of metals which the manufacturer states is frictionless in character and durable in wear; that it does not score or wear rods, and that its saves coal, labor and repairs. This packing is made in two segments of all required sizes, easily inserted in stuffing boxes, and readily removed. Thirty days' trial is given in all cases, and the company states that if the packing is unsatisfactory no charge will be made.

"A Bolt heating furnace, using oil or gas fuel" is the subject of Bulletin No. 11, published by the Rockwell Engineering Company, 26 Cortlandt street, New York City. This furnace is designed for making short heats on round or square stock for up-setting, cutting-off, etc. It is built in sizes to take stock up to 4 inches diameter or square, making heats up to 24 inches long. It requires from 5 to 10 minutes to bring the furnace to a working heat, starting cold. It will bring a 1½-inch diameter bar to a welding heat in two minutes. By working the furnace to its capacity one 1½-inch diameter bar may be heated every thirty seconds. Smaller stock can be heated faster in proportion to size.

Lead covered flexible metallic hose and tubing is the subject of Bulletin No. 25 issued by the New York Flexible Metallic Hose & Tubing Company, 173 Lafayette street, New York City. This bulletin states that this company's hose forms connections combining all the flexibility of rubber hose, with all the pressure-resisting properties of the strongest rigid metal pipes, and the freedom from corrosion of lead pipe, and that with all these qualities it is also capable of withstanding all changes of weather and temperature. Water mains made of this material, the bulletin states, may freeze solid without injury, and may be thawed open by the application of heat. So strong is it that carts may pass over it without interrupting the flow or injuring the line.

A combination lever punch and shear for hand power is described and illustrated in folders mailed by Joseph T. Ryerson & Son, Chicago, Ill. This machine is a double-end punch and shear, having a cutting-off shear on one end and the company's patent treble punch attachment on the other end of the machine. This machine is made for three punches, each working independently of the others. The punch is so constructed that by inserting a sliding key in the different keyholes in front of the machine, any one punch can be operated independently of the others, and by inserting keys in all three holes all the punches may be operated at the same time. If ordered, Ryerson & Company can furnish this machine with angle, tee or channel iron shearing attachment.



FINE MECHANICAL TOOLS

INSTRUMENTS OF PRECISION

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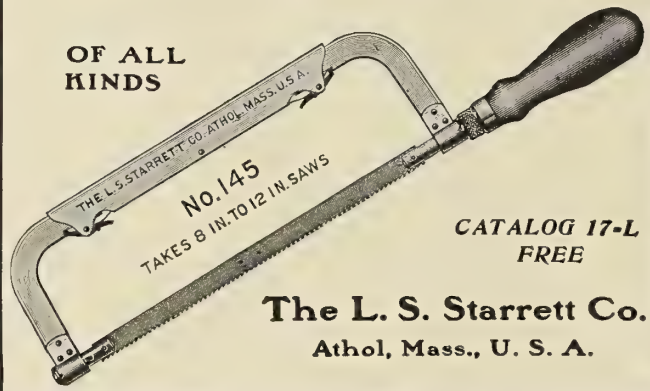

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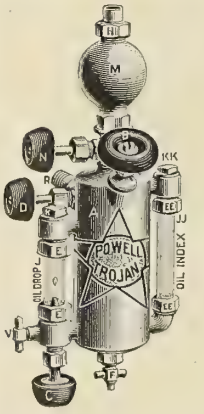

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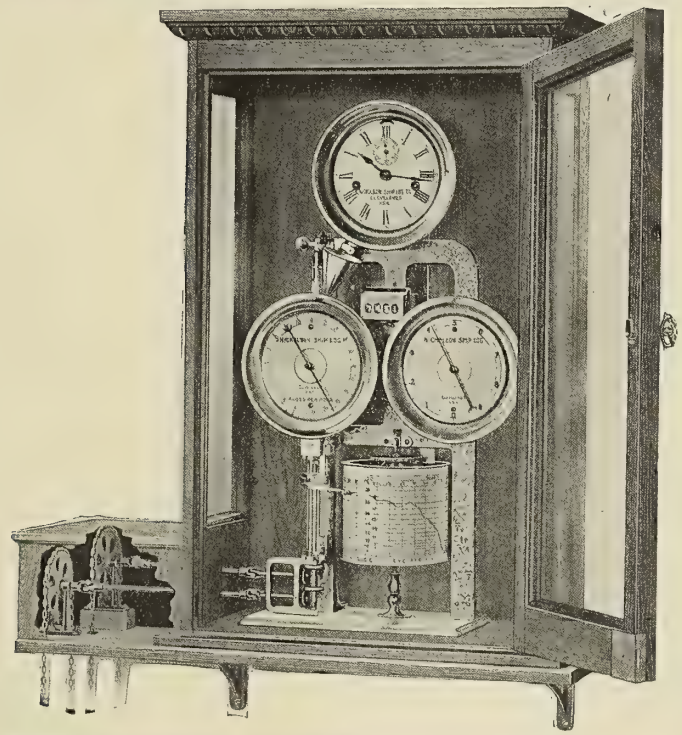

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It performs four separate and distinct operations viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.

CLEVELAND, OHIO, U. S. A.
Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Bldg., Philadelphia, Pa.

Generating sets with horizontal engines are described and illustrated in Bulletin 143 issued by the B. F. Sturtevant Company, Hyde Park, Mass. These generators are of the 8-pole type, direct, connected to the engines by flange couplings. Each generator has a capacity for a momentary 50 percent overload without shifting of brushes or destructive sparks at the commutator. A set can be operated for short periods at 25 percent overload without undue sparking or heating.

Users of grinding machinery should write the publication department, Norton Company, Worcester, Mass., and ask for catalogue N-7. This company's machines for heavy work are made either for overhead works drive or motor drive. They are stated to satisfy the most exacting requirements in round cylindrical work, such as grinding piston rods and engine parts. Shipbuilders, marine engineers, and yacht builders should be sure to have a copy of this catalogue.

"Do You Know?" is the title of a pamphlet published by the Detroit Seamless Steel Tubes Company, Detroit, Mich. This pamphlet deals with the first use of iron and steel known in history; mentions the Catalan forge used in Spain during the eighth century; touches upon the first use of crucible steel; the origin of the rolling mill; the first iron works in America, etc. A free copy will be sent to any of our readers who mention this magazine.

Rod heating furnaces, using oil or gas fuel, are described and illustrated in a catalogue published by the Rockwell Engineering Company, 26 Cortlandt street, New York city. The furnace described in this catalogue is designed for making long heats on stock from ⅜ inch to 4 inches in diameter for cutting off, and is used in the manufacture of rivets, nuts, spikes, etc. The claim is made that it can be brought to the required temperature in fifteen or twenty minutes, starting cold, and that it will heat a 1½-inch diameter rod every 45 seconds, working full capacity.

The general catalogue of machinists' tools, issued by Billings & Spencer Company, Hartford, Conn., should be in the hands of every user of such tools. It is a handsomely illustrated volume of thirty-six pages, describing and illustrating among other articles, wrenches of many sorts, pliers, riveting hammers, machinists' hammers, ratchet drills, cutting off tools, screw-drivers, forgings, drop forged weldless I-bolts, etc. This company makes special drop forgings to order of any nature whatever.

Hoisting Machinery is described and handsomely illustrated in a 160-page catalogue issued by Mead-Morrison Manufacturing Company, Cambridge, Mass., a free copy of which will be sent to any of our readers who will mention INTERNATIONAL MARINE ENGINEERING. This machinery is stated by the company to be especially suitable for ships, docks, dredging and other marine work, and several pages are devoted to worm geared booms, swingers, double drum derrick swingers, compound geared swinging engines, and other hoisting machines used on wharves and on board ship.

The "J.-M." electric heater is the subject of an illustrated folder mailed by the H. W. Johns-Manville Company, 100 William street, New York City. This folder states that these heaters are approved by the National Board of Fire Underwriters; that they are especially adapted for use on steamships and yachts, in public buildings, offices, drawing rooms, etc.; that they are neat and compact and easily portable. They are said to be handsome in appearance, being black japanned bronze with silver or gold, or otherwise decorated if desired. The insulation is porcelain, and the construction is fire and water-proof throughout.

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Armstrong College, Newcastle-upon-Tyne.

Principal: Sir ISAMBARD OWEN, D.C.L., M.D.

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Matriculation and Exhibition Examinations, September 30th-October 5 h.
Opening of Term, October 8th.

Particulars of curricula for University Degrees and College Diplomas in **Engineering, Electrical Engineering, Naval Architecture, Mining, Metallurgy, Agriculture, Pure Science** and **Letters**; as well as of Fellowships, Scholarships and Exhibitions, and of facilities for residence on application to

F. H. PRUEN, Secretary,
Armstrong College, Newcastle-upon-Tyne.

"The Preservation of Ships" is the title of a pamphlet issued by the Long-Arm System Company, Cleveland, O., being a fully illustrated description of this company's system of power doors for use on board ship.

Every reader should write to Greene, Tweed & Company, 109 Duane street, New York City, for this company's new catalogue, describing and illustrating Rochester lubricators.

James L. Robertson & Sons, 48 Warren street, New York city, are sending mailing cards calling attention to this concern's Robertson-Thompson improved indicator, the Hine eliminator and Eureka packing.

Engineers and firemen should write to the Penberthy Injector Company, Detroit, Mich., mentioning this magazine, and ask for a sample copy of *The Penberthy Engineer and Fireman,* the subscription price of which is 25 cents per year.

Users of refrigerating and ice-making machinery should write the Great Lakes Engineering Works, Detroit, Mich., for the company's refrigerating catalogue B.

"The Chimney Must Go" is the title of a folder mailed by the B. F. Sturtevant Company, Hyde Park, Mass. According to this folder mechanical draft saves the cost of chimnies, burns cheaper fuel and increases boiler capacity.

"Spring Painting" is the title of a handsomely illustrated booklet distributed by the Joseph Dixon Crucible Company, Jersey City, N. J. It is devoted to explaining the advantages of Dixon's graphite paint for metal and wood preservation of all sorts.

Air Hammers are described and illustrated in circular E issued by the Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill. This circular states that Thor air hammers hold first place in the principal plants throughout the world and that their simple, durable construction appeals to the mechanic.

The latest issue of Graphite, published by the Joseph Dixon Crucible Company, Jersey City, N. J., contains among many other illustrations one of the ship shed of the Bath Iron Works, Bath, Me., which has been protected from corrosion with Dixon's silica graphite paint.

"Power Plant Equipment" is the title of a handsomely illustrated catalogue of 20 pages issued by Schutte & Koerting Company, Philadelphia, Pa. In this catalogue are described injectors, condensers, stop check valves, automatic free exhaust valves, trip and throttle valves, horizontal check valves, etc.

"Something Electrical for Everybody" is the subject of the 150-page catalogue distributed by the Manhattan Electrical Supply Company, 17 Park Place, New York city. Users of electrical instruments of all sorts should send for a free copy of this publication.

A. E. Hoermann, manufacturers' representative, 41 Park Row, New York city, has just received a supply of handsome catalogues issued by the Dayton Pneumatic Tool Company, Dayton, Ohio, a copy of which he will be glad to send free to all readers of this magazine. These catalogues contain a full list of air hammers, air drills, pneumatic hoists, compressors and practically everything needed in boiler and machine shops and foundries.

Fine Tools and Specialties are the subject of a handsomely illustrated catalogue just issued by Billings & Spencer Company, Hartford, Conn., manufacturers of and dealers in, machinist's tools in drop forgings of every description, in copper, bronze, iron and steel. Among the tools described and illustrated in this catalogue are combination caliper squares, improved pocket calipers, caliper gages, standard steel rules, quick adjusting depth gages, micrometer holders, combination vises, clamps and angles, wrenches, etc.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

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We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

A good thing. All of our readers who appreciate a good thing should write Mr. W. S. Rogers, President of the Bantam Anti-Friction Company, Bantam, Conn., and ask to be put upon the free mailing list of the *Bantam Anti-Friction Booster.* Mr. Rogers will gladly do this for every one who will mention this magazine. The *Booster* is only in part devoted to advertising the products of the Bantam Anti-Friction Company, the remainder being devoted to "Wise Saws" the "Dope Column," etc. The columns headed "Serious," "Non-Sense," "Foreign News," "Local Appointments," etc., would make Mark Twain envious. The editor of the *Booster* states that there is a mass of information contained in his paper which he is very desirous should be within the reach of every reader of International Marine Engineering.

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Made of wood fiber and mineral substances. Can be applied to steel decks cheaply. It is fire proof, water proof, dust proof, and vermin proof. Can be colored any tint and is practically indestructible and monolithic. Samples submitted and estimates furnished.

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It is a great MARINE FAVORITE
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UNITED STATES METALLIC PACKINGS
RELIABLE—SATISFACTORY—EFFICIENT
FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES
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SKETCH SHOWING THE LAYOUT OF BUILDING SLIPS ON THE PARTIAL DRY-DOCK SYSTEM.

TRADE PUBLICATIONS.

GREAT BRITAIN

The Macdonald pipe bending machine is described in an illustrated folder issued by John Macdonald & Son, 5 York street, Glasgow. This machine, the folder states, bends iron and steel pins cold up to 2 inches interior diameter, without flattening or marking pipe and in one-tenth the time of the usual method.

Steam traps, lever valves, regrinding gate valves, pattern valves, cast iron sluice valves, globe and angle stop valves and other steam fittings, are described and illustrated in circulars distributed by Charles H. Holgate, School Close Works, Leeds. A price list and full particulars will be sent upon application to any reader mentioning International Marine Engineering.

A system of electric ship heating is described and illustrated in a bulletin issued by O. C. Hawkes, Ltd., 69 and 70 Aldersgate street, London, E. C. It is stated that this system of electric heating decreases coal consumption; has no fragile parts, and is very strong. "It is made under the induced draught patent—the last word in electric heating."

Asbestos steam pipe and boiler coverings are described in a catalogue issued by Mathew Keenan & Company, Ltd., Tredegar Road, Bow, London, E. This company's aim in an experience of more than forty years as manufacturers of non-conducting materials, has been to produce strictly first class goods, and to improve on existing methods. To this end the company has adopted fibrous asbestos and magnesia, which it states is the most efficient and durable heat insulator known.

An improved suction gas plant is the subject of illustrated circulars issued by T. H. & J. Daniels, Limited, Stroud, Glasgow. The advantages of this company's suction gas producer plant are stated to be that it occulies a minimum amount of space, no gas holder or steam boiler being necessary; that there is no expensive cost of fixing; that either anthracite, peas, or broken coke may be used; that the cost of working is about one-tenth of a penny per horsepower per hour; that the plant is of the best workmanship and design throughout. The company guarantees to replace or repair any parts or break within twelve months from delivery, provided such break is due to fault of workmanship or material.

BUSINESS NOTES.

AMERICA

The Pittsburg Automatic Vise & Tool Company, Pittsburg, Pa., reports that as the result of its recent exhibition at the convention of Master Car Builders and Master Mechanics at Atlantic City, it has secured large orders from many of the leading railroads of the country, and that its unique exhibit of vises attracted an unusual amount of interest, the tools being at all times in active employment, thus illustrating to practical minds their great labor and money-saving possibilities.

Glue for canvas boats.—A number of inquiries have been received recently from correspondents who are building canvas boats or canoes, asking what substance is used by regular makers of boats of this class to cover the canvas and give it a hard, smooth surface. We are informed by L. W. Ferdinand & Co., Boston, Mass., that their Jeffery's patent marine glue No. 7, soft quality, is used extensively for this purpose, and that all the knock-down boat builders who furnish frames for canvas boats and canoes send out this grade of glue for water-proofing canvas with their assortments. This same glue is used for water-proofing canvas for decks and cabin tops, and the makers say it is far superior to white lead or paint for that purpose, as it not only fills the pores of the canvas, but it waterproofs and preserves it. After being applied according to directions it can be painted any desired color. The method of applying this glue is very simple. After being melted over a moderate fire, spread the glue on the surface of the wood or iron with a stiff wire-bound brush, leaving on a good body; lay the canvas on the glue and pass an ordinary hot flat-iron over the canvas and make the glue sweat through, taking care not to have the iron so hot as to scorch the canvas. Experience will immediately show the heat required. Another way of application is to coat the canvas on one side and lay it glued side downward on the wood or other substance requiring to be covered, passing the iron over as before—the canvas will then be found perfectly waterproof, and adhering tightly to the wood, etc. In the course of a few minutes a thin coating of the glue over the canvas may be added (if desired) and the iron again passed lightly over it. A few galvanized tacks should be added to the edges and angles where necessary. The canvas can then be painted.

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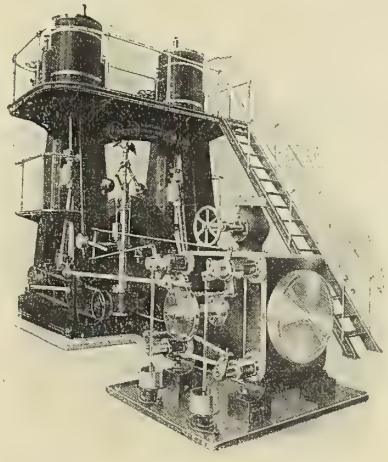

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Punches and dies of all sizes from ¼ to 4 inches in diameter for all structural work where rivets and bolts are used, are made by I. P. Richards, Providence, R. I. A free catalogue will be sent upon request.

Engineers interested in packing should ask the Crandall Packing Company, 136 Liberty street, New York city, to send them two pictures, one showing this company's unused special marine packing, style 340, the other showing a picture of a set of the same material after being in use for sixteen months on the high-pressure valve stem of a steamship carrying 185 pounds' pressure. The company states that up to the time this set was removed, it had not given a particle of trouble, and was still giving excellent service. The pictures bear out this assertion.

Increasing business of the Independent Pneumatic Tool Company. The Independent Pneumatic Tool Company, First National Bank Building, Chicago, states that its business since the first of the year has shown a remarkable increase over the corresponding period last year. Although the company has greatly enlarged its plant at Aurora, Ill., recently installing a large amount of new machinery, and increasing its output about 50 percent, it has been unable to meet the demand for its Thor pneumatic tools and appliances. Although the plant is under full operation day and night, the company has sufficient orders on hand to keep it running for several months. Before the end of the year the Independent Pneumatic Tool Company expects to double its manufacturing facilities.

"Standard" roller thrust bearings.—Mr. Stephen P. M. Tasker, 310 Pennsylvania Building, Philadelphia, Pa., whose advertisement appears on the front cover of this issue of International Marine Engineering, calls attention to the fact that the following well-known yachts have been equipped with roller bearings manufactured by the Standard Roller Bearing Company, whose representative Mr. Tasker is: *Atlantic, Vergana, Czarina, Nylked, Haouli, Surprise, Reva, Anita, Sagamore, Freelance, Alcedo, Wadena, Hanniel, Elsa II, Niagara, Aphrodite.* Mr. Tasker states that this company has also equipped all the submarine torpedo boats of the Lake Torpedo Boat Company and some of the Holland Submarine boats. The Standard Motor Construction Company, Jersey City, N. J., manufacturer of the well-known "Standard" Motors, is using these bearings on nearly everything the company turns out.

All rivet users should write the Hanna Engineering Works, 820 Elston avenue, Chicago, and ask for the loan of a working model of the company's "Silent Salesman." Such a model will be sent to every one of our readers who mentions this magazine. The Hanna Engineering Works will pay postage. This model shows how the company accomplishes hydraulic results with a pneumatic riveter, and users of riveters can see at a glance all the working parts.

The "Ideal" band saw sharpener is a new machine, placed on the market by the Rotary File & Machine Company, 589 Kent avenue, Brooklyn, N. Y. This machine is adapted for filing small band saws, ranging in size up to and including saws with teeth ½-inch from tooth point to tooth point, and 1½ inches in width of blade. There are a number of new features claimed for the machine, which the company states will save one-half or more of the time of hand filing. The claim is also made that it will run indefinitely without requiring repairs.

Oscar Winter, who for more than six years has been steam and engine expert of the National Tube Company, formerly the Lorain Steel Company, Lorain, O., has severed his connection with that company and opened a consulating office in the Rockefeller Building, Cleveland, where he will give special attention to expert work in steam engineering. Mr. Winter, prior to his connection with the Lorain Steel Co., held the position of chief engineer of the New York Edison Co., and was fourteen years in the Atlantic service, where he served as chief engineer.

The Stone & Webster Engineering Corporation has recently placed contracts for new equipment for the Pawtucket Electric Co., including four 520 horsepower B. & W. boilers equipped with Foster superheaters for 150 degrees superheat. This boiler room equipment is practically a duplicate of that recently ordered by the Texas Traction Company, of which the Fred A. Jones Company of Houston are consulting engineers, for operating the Curtis turbines in the new power station at McKinney, Texas. The Virginia Passenger & Power Company of Richmond has also recently placed an order for Allis-Chalmers turbines and B. & W. boilers equipped with Foster superheaters for 175 degrees. These superheaters are made by the Power Specialty Co., 111 Broadway, New York.

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COMPRISING THE DESIGNING, CONSTRUCTION, AND WORKING OF MARINE MACHINERY.

By A. E. SEATON, M. Inst. C.E., M.I. Mech. E., M.I.N.A.

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LONDON: CHARLES GRIFFIN & CO., LTD., EXETER ST., STRAND.

A NEAT STEEL PAPER KNIFE will be forwarded free to every reader mentioning this magazine, by the Shelby Steel Tube Company, Frick Building, Pittsburg, Pa.

SAILS FOR THE KING OF SPAIN.—King Alphonso has ordered a suit of sails for his sonder boat *Mouriscot,* from Wilson & Silsby, Rowe's Wharf, Boston, Mass.

BOILER MAKERS' TOOLS are sent on thirty days' trial by the J. Faessler Manufacturing Company, Moberly, Mo. This company makes a specialty of flue expanders of several types, beading expanders, countersink tools, flue cutters, air drills and chipping, beading and calking hammers.

THE INDEPENDENT PNEUMATIC TOOL COMPANY, First National Bank Building, Chicago, Ill., had a complete working exhibit of its Thor pneumatic tools and appliances at the Railway Master Mechanics and Master Car Builders' Convention held at Atlantic City, N. J., June 12 to 19.

THE BLACKNER ROTARY PUMP and Power Mfg. Co., Petoskey, Mich., has taken a space in the Philadelphia Bourse exhibition, and will make a display of its pumps which may be seen in operation. The company will be represented in its new field by Mr. H. H. Blake, M. E., of Philadelphia, who was formerly with the Platt Iron Works. Inquiries are solicited regarding pumps for all services.

CRUCIBLE STEEL CASTINGS, made in sizes from 1 to 1,000 pounds, are manufactured by the Buffalo Crucible Casting Company, 25 Washington street, Buffalo, N. Y. The company states that its castings are particularly adapted for use where high tensile strength and long wearing qualities are desired, as in crank shafts, connecting rods, gears, die blocks, automobile parts, etc. They are said to be smooth, soft, solid and easily machined.

CLEVELAND PUNCHES AND SHEARS, rotary planers, plate planers, bending rolls, straightening rolls, radial drills, punches and dies, rivet stays for pneumatic hammers, dies for riveting machines, punch holders and coupling nuts, drift pins, flue and handhole punches and machines of all kinds for boiler makers, structural iron works, car shops, etc. are made by the Cleveland Punch & Shear Works Company, Cleveland, O. Free catalogues will be sent upon request to readers mentioning this magazine.

AT A SPECIAL MEETING of the directors of the Joseph Dixon Crucible Company, held May 31, to take action on the death of John A. Walker, vice-president and treasurer of the company, George T. Smith was elected vice-president; George E. Long, treasurer, and Harry Dailey director and secretary.

MR. ISAAC MARKEY has been elected a vice-president of the Eureka Fire Hose Company, 13 Barclay street, New York city. Mr. Markey has been identified with the Eureka Fire Hose Company for many years and is well equipped in every way to assume the increased responsibilities which will come to him in his new work.

MR. OLAF SAUGSTAD, representing Hohmann & Maurer Manufacturing Co., Rochester, N. Y., has taken space in the exhibition department of the Philadelphia Bourse, where he will display a full line of goods. Mr. Saugstad has been superintendent of the Davis & Boesh Temperature Controlling Co., Newark, N. J. A full line of automatic regulators will be in operation under steam pressure.

TEN GLAZIER UNIVERSAL NOZZLES FOR NEW FIRE BOATS.—S. F. Hayward & Company, 20 Warren street, New York city, have been awarded a contract for equipping the two fire boats *Thomas Wilett* and *James Duane,* belonging to the City of New York, with stationary Glazier nozzles. Five of these are to be used on each of the boats to deliver a maximum stream of 3½ inches in diameter. Each boat will have as part of its equipment a steel tower from the top of which one Glazier nozzle will be operated, thus giving it a vantage point of about forty feet above the water line.

"STANDARD" ROLLER BEARINGS on the *Aphrodite.*—Mr. Stephen P. M. Tasker, 310 Pennsylvania Building, Philadelphia, Pa., has sent us a copy of the following letter from the chief engineer regarding "Standard" roller bearings on the steam yacht *Aphrodite:* "The roller thrust bearing worked excellently, and we got six revolutions more out of the engine with the same cut-off than before it was put in, not saying anything about the saving in coal. We have run about 11,000 miles, and have put no oil in thrust bearings since we started, and as for care, the oilers have almost forgotten that there is a thrust bearing in the ship. The saving in coal on the *Aphrodite* was betwen four and five tons per day."

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BUSINESS NOTES.

GREAT BRITAIN.

Joy's Patent Assistant Cylinders have been fitted to the S.S. *Laura*, and her sister ship; also to three other vessels being engined by Scotch firms.

Sanitary fittings on the Steamships *Adriatic* and *Mauretania*. Doulton & Company, Ltd., London and Paisley, who have supplied all the sanitary fittings for the new White Star steamship *Adriatic*, have received a contract for the whole of the fittings for the new Cunarder *Mauretania*.

The Yorkshire Machine Tool & Engineering Works will in future be known as The Alma Machine Tool & Eng'g Works, Liversedge. This company, recognizing the necessity of specializing on up-to-date lines, and of turning out only high class tools at moderate prices, has for some time past been bringing its manufacturing equipment up to the recognized modern standard, and has recently availed itself of the services of Mr. T. W. Webb, M. I. M. E., as general manager. Mr. Webb is well known as an expert in up-to-date machine tool practice, and it may be mentioned that he has resigned an important position in the management of the Birmingham small arms works to take up the appointment at Liversedge.

Mr. M. P. Galloway, of the Galloway Saloon Steam Packet Co., Leith, makes a claim that engineers and naval architects will read with interest. He states that last summer he discovered the value of an alteration in pitch of a ship's propellers. One of the bronze propellers of their *Roslin Castle* was damaged. They removed it and put on a cast iron propeller of different pitch and surface to the other; when the ship got under way they were surprised to find the vibration almost nil. Mr. Galloway has now renewed the bronze propeller that was damaged, and has carried out the same idea. The new propeller is slightly different in pitch, and is of increased surface. The difference in revolutions between port and starboard engines will be about 15, and the ship's speed is the same. One will be interested to hear the verdict of experts as to the value of this innovation.

The new White Star steamer *Adriatic* has had its high power rods and valve spindles packed with "Excelsior" metallic rings made by the Beldam Packing & Rubber Company, 93 and 94 Gracechurch street, London, E. C.

Fire Extinguisher.—The "New Era" fire extinguisher of the Valor Company, Ltd., Rocky Lane, Aston Cross, Birmingham, is stated to be tested to a pressure of 350 lbs. to the square inch, and it can throw a stream of fire-extinguishing chemical from 40 to 50 feet if necessary. It will promptly extinguish burning petrol, alcohol, turpentine, oil, tar, and other inflammable material that cannot be extinguished by water. The material of which it is made is specially finished hard rolled copper, tinned on the inside to prevent corrosion. It is strongly riveted and beautifully polished and lacquered.

Improvements in Ship Lamps.—Messrs. Telford, Grier & Mackay, Ltd., Glasgow, the well-known makers of the "Perfecta" patent ships' signal lamps, have effected improvements in their specialty, which cannot fail to be appreciated by shipowners, shipbuilders, surveyors and naval architects. This company's latest patent has for its object the application of a special arrangement in lamp font and burners for burning mineral oils, such as paraffin, mineral colza, mineral sperm, without the necessity of using a glass chimney or any framework to act as a chimney inside of a signal lantern. In brief, Messrs. Telford, Grier & Mackay have succeeded in inventing a lamp which gives a brilliant light from paraffin oil without the use of a glass chimney or any of the devices generally adopted, such as encircling the flame with a metal frame fitted with glass, or fitting a cone shaped tube to act as a chimney. One can readily see how objectionable chimneys are, or indeed anything of the nature of a chimney, for whenever a vessel is in motion, the glass is liable to get obscured by smoke, and the efficiency of the lamp consequently much deteriorated. So that the new lamps accomplish an important improvement in ships' lights. For the new lanterns, having no glass chimney, are free from liability of breakage, or being obscured by smoke; have no perforation in burner to choke up, and are unaffected by wind or water, all of which are points of outstanding value, as will be readily understood by all who realize how important for a ship's safety good and reliable lights are.

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Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Draftsman wants position with marine engineering or shipbuilding concern. References furnished. Address: 908 North Second street, Harrisburg, Pa.

WHILST ON HER HOMEWARD VOYAGE FROM THE BLACK SEA, the S.S. *Craigellachie* (of Leith) with a cargo of grain, barley meal, etc., came into collision with an iceberg in the sea of Azov, and started some rivets on the water line in the fore peak. This caused a leakage through the rivet holes, and encountering a gale and heavy seas in the Bay of Biscay, the captain, instead of proceeding to his port of destination (Hamburg), thought it advisable to put into Plymouth, arriving there about 5 p. m. on Saturday, 6th April. A firm of engineers there (Messrs. Parkyn & Co.) arranged with the captain to pump out the fore peak, from which several hundred bags of barley meal had been thrown overboard between the Black Sea and Plymouth. The remaining bags having burst, the fore peak was full of a thick substance, a mixture of the meal and water. After trying a No. 2 Pulsometer pump, obtained locally, it was decided to wire to the Pulsometer Engineering Co., Ltd., Reading, for a larger size of pump, which was accordingly done, and a No. 4 Pulsometer pump, sent by passenger train, reached the ship at 6:30 p. m. on Monday, 8th April. This pump was fixed in the fore peak of the *Craigellachie*, started pumping at 3 a. m. Tuesday and continued till 8:30 p. m. the same day; the pump working splendidly and discharging, it was reckoned, about 60 to 80 tons of the "porridge." The ship sailed from Plymouth at 9 p. m. on the Tuesday, and much satisfaction was expressed by the superintendent of the company and all concerned at the splendid results obtained and at the expeditious manner in which the work had been executed.

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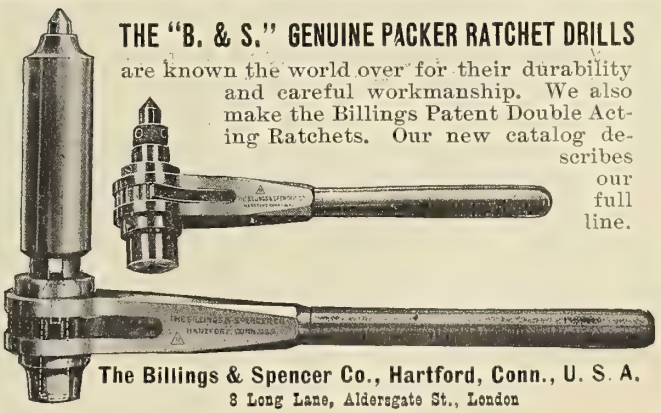

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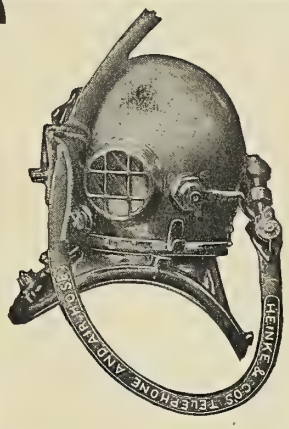
Bulletin No. 21, issued by the Submarine Signal Company, 88 Broad street, Boston, Mass.: "The United States Lighthouse Board has arranged with the Submarine Signal Company to equip with submarine bells the light-vessels on the Pacific Coast and in the Gulf of Mexico. The lightships on the Atlantic Coast and the Great Lakes are now sending submarine signals. The Canadian Department of Marine and Fisheries has equipped the St. Lawrence River and Bay of Fundy lightships to send submarine signals and are installing stations along the coast of New Brunswick, Nova Scotia and Cape Breton. The entrance to every important harbor in North America is, or is to be, protected by submarine signals. Submarine bells are in operation in German, English, French, Dutch and Danish waters. Submarine signaling is a simple, quick and accurate means whereby the navigator determines location and gets direction in thick and foggy weather, when air signals cannot be heard or, when heard, are misleading. Vessels of the mercantile marine aggregating over 1,400,000 tons are equipped to receive submarine signals. Every captain who has ever used submarine signals appreciates the enormous relief he experiences when he hears the sound of the submarine bell, that comes to him through miles of water and guides him directly into port even when fog hides every object from sight, and currents of air either mislead him as to the direction of the fog-whistle, or else entirely prevent him from hearing its blasts. Every ship-owner should know that a vessel equipped to receive submarine signals can navigate in fog almost as safely as in clear weather. Thus the perils of the sea are reduced to a minimum. Shippers and underwriters should realize the fact that submarine signals are revolutionizing the aids to navigation, and that the vessel which undertakes to navigate coasts where bells are installed, without being equipped to receive submarine signals, refuses to make use of the aids to navigation which governments supply and maintain. Passengers by sea should look to it that the vessels on which they travel are equipped with the approved apparatus to insure safety as well as despatch. Lists of stations equipped to send submarine signals, and of vessels equipped to receive signals, will be sent on application."

All users of boilers, engines, dynamos, motors and machinery of any kind should write Wickes Bros., machinery manufacturers and dealers, Saginaw, Mich., and ask to be put on the free mailing list of this company's Monthly Stock List.

Emmert vises are described and illustrated in catalogue No. 7, issued by the Emmert Manufacturing Company, Waynesboro, Pa. The peculiarity of the Emmert vises is their ability to be swung around in a variety of positions, so that they always present the work in such an attitude to the workman that he can operate in comfort. The Emmert "Universal" vise has seven pairs of jaws, so that it is adapted to grasp any kind of work without regard to irregularity of form.

Cylindrical grinding machines are the subject of a handsomely illustrated catalogue of 64 pages issued by the Norton Grinding Company, Worcester, Mass. The points of superiority claimed for this company's machines are as follows: The grinding wheel is rigidly suppported by the entire base of machine. There is but one moving joint between the wheel and base, and this is very near the wheel. The wheel slide is very heavy, to preserve perfect contact of the ways. This avoids the use of gibs, which interfere with definite and correct movements. The ways are of sufficient width to insure smooth motion. The wheel slide is moved by a massive screw made of high carbon steel, resting in an "anvil" bearing, and has an oil bath. Diameters of work can be automatically obtained, accurate to quarter thousandths. No "jumping in" of wheel. Every speed of work, wheel, and table can be changed at the machine without overhead cones. All speed changes can be made without stopping either the work or the wheel. All adjustments, operating levers, and handles can be reached from one point in front of machine. The grinding wheel is always in plain view of the operator when he is in the position to make all speed changes and adjustments. All belts run at one speed, whatever the speed of work, wheel or table. All table speeds can be used, whatever the speed of work may be. All work speeds may be used, whatever the table speeds may be. The water tank is a part of the base and holds a barrel of water. Water flows direct into tank without passing through pipes or holes. A well-made pump supplies water. Forty gallons of water may be delivered to the work each minute. Work is revolved through powerful gearing. The work driving plate is of solid steel. Common lathe dogs may be used.



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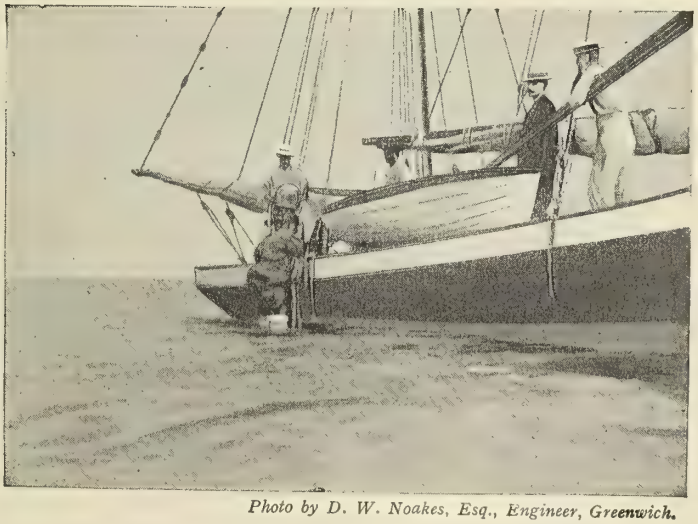


Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

"Folding Rules" are the subject of a circular distributed by Keuffel & Esser Company, 127 Fulton street, New York city, which should be in the hands of all users of these instruments.

The general list of books published by Longmans, Green & Company, 91 Fifth avenue, New York city, has been bound in stiff covers and will be sent free to any reader mentioning this magazine. This company makes a specialty of educational books and works on general science.

Drop forging machinery is the subject of an illustrated catalogue of 32 pages published by E. W. Bliss Company, Brooklyn, N. Y. This catalogue is just off the press and illustrates the latest lines of drop hammers, trimming presses, etc. A free copy will be sent to any reader mentioning this magazine..

Every Boiler Maker and user of machine tools should ask the Scully Steel & Iron Company, Chicago, Ill., to put him on the free mailing list to receive this company's Stock List. This is a volume of about 150 pages, listing everything from angles to z-bars.

The July issue of *Graphite,* issued by Joseph Dixon Crucible Company, Jersey City, N. J., contains Chapter III of "Pressure Reducing Valves," by W. H. Wakeman; an article on "Coating Boiler Tubes with Graphite"; one on "Rock Drill Lubrication" and other articles of interest to engineers.

The general catalogue, issued by the Durable Wire Rope Company, 26 Atlantic avenue, Boston, Mass., should be in the hands of every user of wire rope. This company's wire rope is stated to be especially desirable for towing hawsers, dock fasts, tiller rope and other marine uses.

"Electric Fans" are the subject of illustrated catalogue No. 315, issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York city. This catalogue will be found of value to all those interested in keeping cool during the summer months.

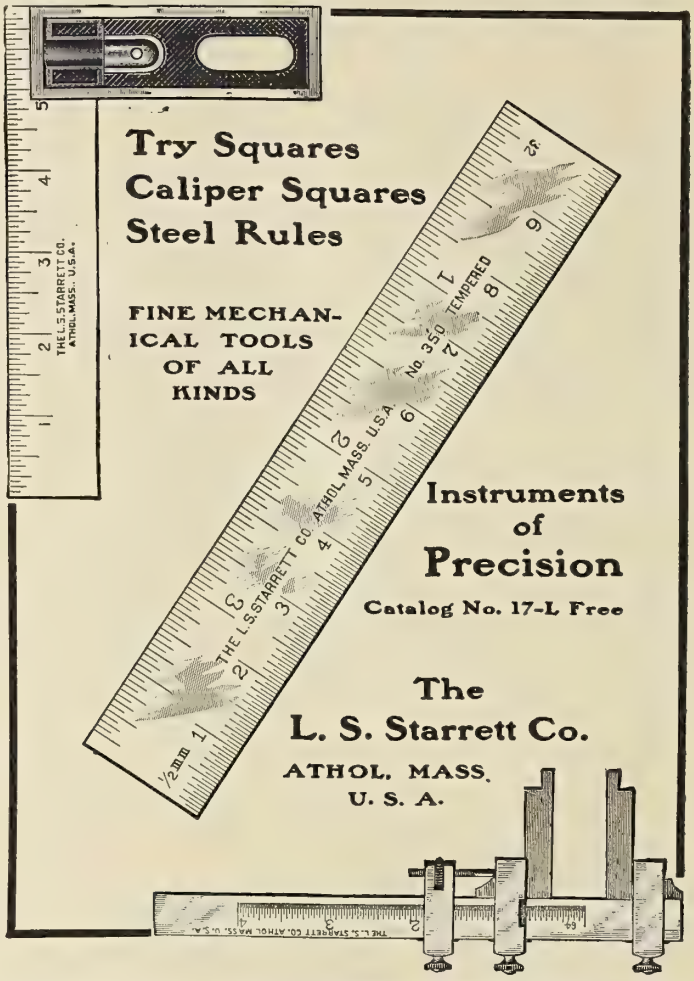
Users of machine tools of any description should write the Niles-Bement-Pond Company, 111 Broadway, New York, mentioning this magazine, and ask to be put on the free mailing list of *The Progress Reporter,* which is issued every few weeks with the object of keeping the public informed as to the new machines and devices constantly being placed on the market by the Niles-Bement-Pond Company and the Pratt & Whitney Company.

Compressed air pumping systems is the subject of a pamphlet issued by the Ingersoll-Rand Company, 11 Broadway, New York city. The leading methods of pumping by compressed air are briefly described in these pages. No attempt is made to cover the ground fully but the subject is exhaustively treated in larger publications issued by this company, which are supplied upon request.

A catalogue has just been issued by the Pittsburgh Automatic Vise & Tool Company, Pittsburgh, Pa., illustrating special automobile and motor boat vises. The entire book is black and white and in spite of its artistic nature, each subject is plainly and concisely dealt with. Due to the special class of people it is intended for, as little description matter as possible is given, everything being fully described by cuts.

"Buffalo Pumps" is the title of an illustrated 132-page catalogue published by the Buffalo Steam Pump Company, Buffalo, N. Y. In this catalogue the company has endeavored to list all pumps used in ordinary service, and to show their general appearance by an illustration. The machines may vary somewhat from the cuts shown, as each cut illustrates a particular size, but an exact drawing will be furnished at the time of ordering, if desired. In addition, it is impossible in a catalogue of only 132 pages to list all the combinations of steam and water ends the company makes. Quotations, drawings and specifications will be sent upon application.

Feed water filtration is the subject of a catalogue published by James Beggs & Company, 109 Liberty street, New York city. This company manufactures the well known Blackburn Smith feed water filter and grease extractor for the removal of organic matter, sediment, lubricating oils, etc., from boiler feed water in marine and stationary power plants, and for the removal of any matter in mechanical suspension in liquids where economy or quality of product is affected by the presence of such matter. The filter chest of this grease extractor is divided by a partition into two chambers, water entering the upper or filtering chamber passes to the outlet chamber through filtering cartridges set in the partition. Each cartridge consists of two concentric perforated brass cylinders, so covered that all water must pass through two layers of linen Terry before it can proceed to the outlet. The cartridges are easily replaced when foul.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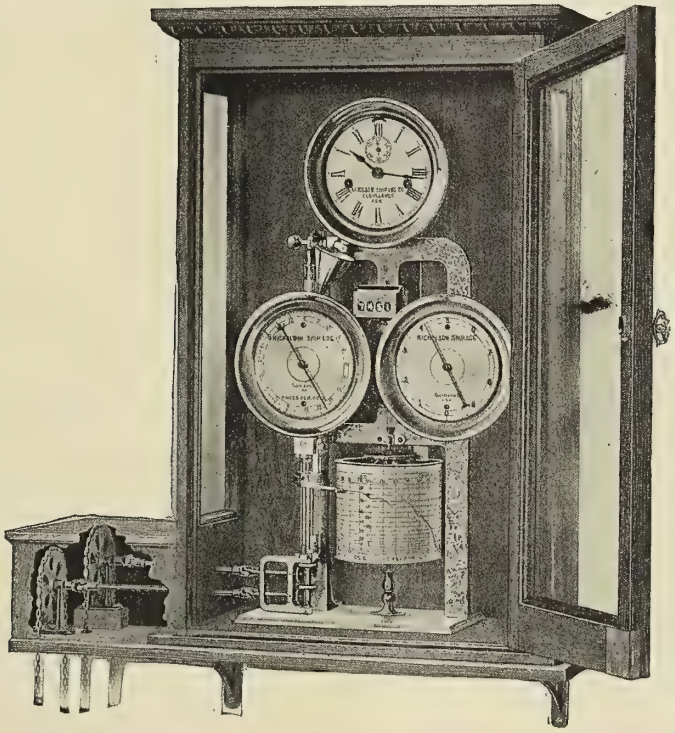

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NICHOLSON SHIP LOG CO.

CLEVELAND, OHIO, U. S. A.

Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Bldg., Philadelphia, Pa.

TRADE PUBLICATIONS.

GREAT BRITAIN.

Hortsmann's solar compensating electric time switch is described and illustrated in a leaflet published by the Hortsmann Gear Company, Limited, 13 Union street, Bath. This device can be made to switch on and off at any fixed time and any variable time, and at any recurring time and period.

A price list of woodworking machinery and appliances, consisting of a booklet of 36 pages, has been issued by A. Ransome & Company, Limited, Newark-on-Trent. This price list states that the company wishes to draw attention to the fact that in order to cope with its steadily increasing trade it has recently made considerable additions to its plant and has installed several of the most modern labor-saving machines, thus enabling the company in many instances to make substantial reduction in its prices.

The 1907 pneumatic tool catalogue of the Consolidated Pneumatic Tool Company, Ltd., of Palace Chambers, 9 Bridge street, Westminster, S. W., is, if anything, more artistically produced than any previous issue of this booklet. Certainly no earlier catalogue of the company can claim to be so complete, and a glance through its pages will probably surprise even our most up-to-date engineers in respect of the wide range of usefulness these handy little tools now cover in the everyday work of the engineering shop and shipyard.

"The Deadreckoner," an instrument for ascertaining a ship's position at sea by account, is described and fully illustrated in pamphlet No. 10, issued by Siemens Brothers Dynamo Works, Limited, London. This instrument consists of two parts: the transmitter, which is fixed on the poop, and the recorder, which is placed in the chart room. These are connected by a small electric cable about ½ inch in diameter. A full description of this instrument is contained in this pamphlet, a free copy of which will be sent to every reader mentioning INTERNATIONAL MARINE ENGINEERING.

The boiler composition feeder with brass tube register, manufactured by Sydney Smith & Sons, Nottingham, is the subject of circulars distributed by the manufacturer. The claim is made that this apparatus avoids the primitive method of supplying the composition through the safety valve when the boiler is at rest. To pass it through the injector, or pump, is an operation to be avoided, according to the circular, so that this simple and effective device has been invented in order to charge the boiler direct from the composition feeder. The device may be fixed on the tube or the front of the boiler, or arranged to feed a series of boilers from one supply.

Phosphor Bronze casting alloys are described in circulars published by the Phosphor Bronze Company, Limited, 87 Sumner street, Southwark, London, S. E. The circular states that this company's alloys of phosphor bronze have been in extensive use for more than thirty years, during which time they have established a well-deserved reputation throughout the world for excellence and regularity in quality. The statement is made that the company's No. XI alloy is universally acknowledged to be the finest and most durable metal in existence for bearings and bushes of every kind, slide valves, eccentric straps and many other parts of machinery exposed to wear by friction.

Every user of rubber goods should send for a copy of a very handsome catalogue, issued by the Leyland and Birmingham Rubber Company, Ltd., Leyland, near Preston. The catalogue has a handsome lithographed cover and the pages are all printed on art paper in two colors. A very complete index gives a list of the many specialties which this company manufactures. The specialties of interest to our readers are various kinds of packing, belting of several kinds, hose for steam, water and all sorts of purposes, etc. Although the catalogue is a very handsome and expensive one to publish, we infer that any of our readers who mention INTERNATIONAL MARINE ENGINEERING can have a copy sent to them free of charge.

Griffin's patent duplex marine oil engines, reversing gear and propellers are the subject of price list No. 1 issued by the Griffin Engineering Company, Bath. This company states that its new patent reversible feathering propeller has been designed for use where auxiliary or occasional power is required for sailing craft, etc. Its special feature is that by the simple movement of a hand lever the blades may be instantly reversed or feathered directly fore-and-aft, so that the vessel can proceed under sail only, without the slightest impediment from the propeller. For the lighter kinds of pleasure and other boats, where weight is of importance, it will be found perfectly adapted.

Horizontal Log Band Saws are described and handsomely illustrated in a 36-page catalogue published by A. Ransome & Company, Limited, Newark-on-Trent. This catalogue states that there are in constant use about 80 of the company's horizontal log band saws, which are in constant work in the principal shipbuilders' and government dock yards, etc., and that all the users report that these machines leave nothing to be desired as to the quality of work which they turn out, whether when breaking down a large log into flitches, or sawing it into thin boards. With one exception, every horizontal log band saw which this company has supplied in Great Britain, is operated by a man who formerly worked either a vertical log frame, a horizontal single blade frame, or a rack bench, so that the statement of competitors that it requires an expert to work these machines is unfounded. With regard to the objection that these band saws are damaged or spoiled after cutting a nail or spike, the company states that it knows an instance in which at a single cut the saw passed through no less than sixteen nails and spikes, and after having been sharpened and set, which occupied less than an hour, the saw was cutting as well as ever. In some cases these saws have cut through pieces of iron with a sectional area of more than one square inch with no further damage than could be put right in less than an hour in the sharpening machine, and resetting the teeth.

BUSINESS NOTES.

AMERICA

"NOTHING IN OR ABOUT A STEAM PLANT cuts down the dividends, runs up the operating expense, and causes trouble without a single benefit, more than boiler scale. It is a universal foe to those who operate, or are in any way connected with steam plants. The principal scale forming substances in feed-water are carbonate of lime, sulphate of lime or gypsum and magnesia. These are soluble in cold water and in water of moderately high temperature, but become insoluble at a temperature of 303 degrees, which corresponds to an absolute steam pressure of 70 pounds. Scale forming substances are precipitated by heating and evaporating the water. Part of the precipitation is deposited as mud, and part settles on the hot plates, tubes, crown sheets, side sheets, or any place in the boiler where these mineral substances may get in contact with the iron, and form scale. Scale is very objectionable in a boiler, because it seriously detracts from the heat transmitting power of the metal that is in the boiler. In boilers that have a 1-16 inch scale, the efficiency is decreased 30%, thus requiring about 15% more fuel to get the required evaporation. Scale keeps the water from coming in contact with the plates, causing them to become overheated, which greatly shortens the life of a boiler. The question that naturally confronts the steam user is, how can this scale be removed and its formation prevented at a minimum cost, without injury to the boiler or loss of time? A compound that will remove scale that is already formed must go to the root of the evil. It must act on the iron in such a manner as to remove the scale, and once removed to keep it so. This is the secret of Magic Boiler Compound now being offered for sale by the H. W. Johns-Manville Co., 100 William Street, New York. Its action is natural—neither mechanical nor chemical. When introduced into the boiler it seeks the iron, and working its way between the scale and iron, causes the scale to loosen and fall off, and presents a surface to which no further sediment will adhere. Magic Boiler Compound is adapted to every climate and locality and no analysis of water is required in order to secure the best results. The H. W. Johns-Manville Co. is issuing an interesting folder entitled 'How to Clean a Boiler,' which gives some very valuable information on this subject."

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We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

DECISION IN FAVOR OF AJAX METAL CO. On July 31st, 1907, in the Circuit Court of the United States, District of New Jersey, Judge Archbald presiding, a decision was rendered in favor of The Ajax Metal Company of Philadelphia, Pa., and Birmingham, Ala., relative to infringement made upon their patent covering plastic bronze. This decision is regarded as one of the strongest, and fully sustains all the claims made by The Ajax Metal Company, and their priority in manufacturing and selling their celebrated Ajax plastic bronze.

MIETZ & WEISS MARINE OIL ENGINE in British Guiana.—Dr. Cephas Whitney, Georgetown, Demerara, British Guiana, in his motor boat *Noono*, equipped with a 7-horsepower Mietz & Weiss twin cylinder marine oil engine, has recently made a journey over a 285-mile stretch in the Massaruni river, and sends the following statement to August Mietz, 128 Mott street, New York city, the manufacturer of the Mietz & Weiss engine: "The *Noono* left Bartica April 3d for Suriname, a distance of 185 miles. Strong currents and dangerous gales at times making progress only inch by inch, but without a mishap or stop of the engine, made the distance in 49 hours and 16 minutes. Much encouraged by this success, Dr. Whitney is now fitting up six boats, arranged with two cylinder installations of 10-horsepower Mietz & Weiss double cylinder oil engines of the tunnel propeller type, especially designed for the shallow rivers of the interior."

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The United States Metallic Packing Co.

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ECONOMY OF STEAM MEANS SAVING COAL.—The reducing valves made by the Mason Regulator Company, 158 Summer street, Boston, Mass., are stated to regulate and maintain an even pressure of steam or air. "Changes in the initial pressure do not affect them."

THE SECRET OF SUPERIORITY of "Tuxeda" bronze union lies in the quality of the bronze and the quantity of it, together with honest workmanship, according to Franklin Williams, the manufacturer, 41 Cortlandt street, New York city. These unions are especially designed for high pressure and continuous service. They are made entirely of bronze, with extra heavy ground joints, both ends being hexagonal.

"MORE HOLES FOR LESS MONEY" is the claim made for the Knecht drill by the Knecht Bros. Company, Cincinnati, O. In this company's friction drill, the ordinary devices for driving the spindle and changing the speed, such as stepped pulleys, gears, etc., have been replaced by a friction device which the manufacturer states is effective and exceedingly simple, obviating loss of time from shifting belts, having no gears to break and to catch the fingers, and no limitations to variations in speed. It is said to be suitable for all classes of rapid and accurate drilling, both tool room work and for the quick drilling of jigged pieces. It drills holes of any size up to 9-16 inch.

REGARDING "STANDARD" ROLLER BEARINGS.—Mr. Stephen P. M. Tasker, Pennsylvania Building, Philadelphia, Pa., sends us the following letter telling of the satisfaction given by "Standard" roller bearings on the steam yacht *Aphrodite*: "The *Aphrodite* returned from Europe and you will be interested to learn how the thrust has behaved. We sailed direct to Gibraltar, then to Algiers, Constantinople and Norway, and cruised around the British Isles, then home. Very rough passage home. No trouble or stop of any kind due to defective machinery during trip. Thrust attended to but once, when two gallons of oil were added. Chill never off thrust. Tested for lost motion and none found. Not a nut or bolt has been touched since I adjusted them in the Spring of 1905, and they are ready for another trip across. The coal consumption has been very much reduced, and every one from the captain down praises the roller thrust bearing and will do all he can to induce others to use them. As the engine is a very heavy one, I think this as fair a test as could be had on board any type of vessel."

THE BUFFALO GASOLENE MOTOR COMPANY has lately perfected a crude oil attachment for its motor which is able to run either with gasolene or oil fuel. Mr. Stephen P. M. Tasker, 310 Pennsylvania Building, Philadelphia, Pa., who furnishes us with this information, and whose advertisement appears on the front cover of this issue, states that this crude oil attachment ought to be a great thing for people wanting a very cheap fuel. He states that besides the regular high speed launch motor, the Buffalo Gasolene Motor Company makes a slow speed heavy duty engine, suitable for heavy boats and crude oil fuel.

"THE CELFOR TOOL COMPANY is the new name of the George R. Rich Manufacturing Company, Buchanan, Mich., under which new name we shall continue to manufacture the same devices and appliances as previously. The personnel and organization of the company is unchanged. We manufacture the well-known Celfor twist drills and chucks, the Rich flat drills and chucks, and the improved grinding machines, boring bars, expanding mandrels and arch bar drill presses, under numerous patents granted and applied for. We are constantly improving the quality and design of our various devices and it is our desire and intention to maintain the highest possible reputation for our goods. As the originators of several radically new devices, we class as specialists in our line."

WHAT THE MOTOR BOAT and automobile manufacturer wants is a steel that will stand up under vibration. The American Vanadium Company, Frick Building, Pittsburg, Pa., states that there are plenty of steels with great elastic strength but that they won't stand the terrific strains, the unexpected shocks and the constant vibration to which they are subjected in modern high speed marine engine and automobile construction. This company calls its Vanadium steel the "Anti Fatigue" steel, because it states that it not only excels in elastic limit, but that it has more life or vitality to it than any other steel ever produced. Vanadium steel is stated to be practically unbreakable under any of the conditions of ordinary or extraordinary use. The manufacturers state that it takes a tremendous pressure to bend it, but that it will bend before it will break; that it will not deteriorate under vibration; and that it will not break under sudden or unexpected stress.

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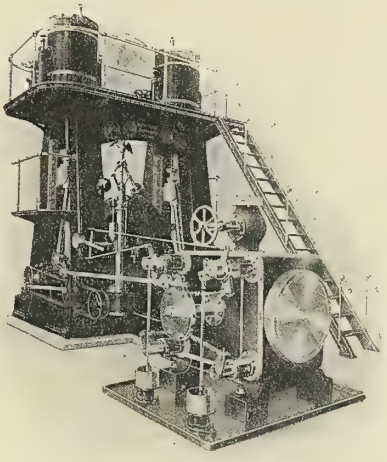

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Write for Catalogue "B"

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REMOVAL NOTICE. The San Francisco Office of the General Electric Company is permanently located in the Union Trust Building. Since the fire the office has been located in the Union Savings Bank Building at Oakland, large temporary warehouses having also been erected in the same city.

INCORPORATION OF THE MOSHER WATER TUBE BOILER COMPANY. —The Mosher Water Tube Boiler Company, 1 Broadway, New York city, has just been incorporated under the laws of the State of New York, with a capital stock of $200,000. The corporation has acquired a large plant at Ossining, N. Y., and its works are now being fitted up with modern tools and a complete equipment for the economical construction of the company's boilers and accessories, for marine and stationary purposes. The company states that its boilers are especially adapted for high duty and exacting requirements, and that there is a large and increasing demand for them. Among the contracts recently secured are the following: Six boilers for the United States gunboat *Nashville;* four boilers for the coal, water and ash barges for the Brooklyn navy yard; one boiler for a United States revenue cutter; one boiler for the U. S. S. *Restless;* two boilers for P. W. Rouss' new high speed yacht *Winchester;* one boiler for A. P. McLaurin, Miaria, Cuba.

THE STANDARD ROLLER THRUST BEARING advertised by Stephen P. M. Tasker, Pennsylvania Bldg., Philadelphia, Pa., is said to be rapidly supplanting the old-fashioned babbitted horeshoe thrusts with in every case an increase in horsepower and speed besides the saving in oil, water, coal and attention. Reciting one case in particular we are told that, according to the chief engineer of the S.S. *Sagamore,* the speed was increased seven-tenths of a knot per hour with the same coal consumption; the amount of oil formerly used in a given time was forty-two quarts, and the amount now used in the same time seven quarts; vibration was reduced to a very noticeable extent. The water jackets were entirely done away with and not, under any circumstances, had the roller thrust heated or caused trouble. The steamer was run about four thousand miles since the application of the bearing and it showed absolutely no wear. In the case of the steam yachts *Kittewan* and *Wadena* they used about one-twentieth the amount of oil for lubrication and increased the revolutions with the same pressure of steam and cutoff.

THE WELIN QUADRANT DAVIT, for which A. P. Lundin, 17 Battery Place, New York city, is the American manager, has up to date supplied more than 1,500 davits. This device has been adopted by the following steamship lines: Allen Line, Royal Mail Steam Packet Company, Ltd., Union Castle Mail Steamship Company, Compagnie Generale Transatlantique, Chargeurs Reunis, Hamburg-American Line, Holland-America Line, Nord Deutscher Lloyd, Toyo Kisen Kabushiki Kaisha, and others; also by several governments. A number of the railroad companies in Europe, South America, New Zealand and the United States have recently adopted these davits for their express steamers and ferryboats.

SAFETY, ECONOMY AND REDUCED OPERATING EXPENSES are attained by the following conditions, according to the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio: "By the equilibration of the temperature between the inner and outer sheets of the firebox, expansion and contraction of the staybolts are made equal and uniform. The breakage of the staybolts is reduced to the limit of the life of the material in wear and tear, unaffected by dilatations, which produce crystallization. The natural life of good material is increased and its tensile endurance in the steam space is 15 per cent greater in temperatures up to 500 Fahrenheit. The breakages at the critical temperature, and breakages at higher temperature, in the inner ends and necks of the staybolts are often causes of explosions. The brittle quality is never, when the material is good, found in temperatures under 500 Fahrenheit. The steam, after absorbing the excess heat in the inner ends, disrupting, in part, by dissociating its hydrogen and oxygen, superheated to a perfect gas, passes with those gases into the furnace, there converting the solid fuel into a gaseous fuel, and to water gas. At the same time, with the making of the gases, the streamlets of air, passing through the staybolts, take with them the heat at the inner ends of the staybolts, and there, in the presence of the sensible heat of the furnace, and in the affinity of its oxygen for the combustibles in the fuel, the oxygen separates from the nitrogen, which improves the draught to unite with the combustibles in the gaseous fuel, and perfects combustion by their perfect union. By only such means, more fully explained in U. S. Patent 853,099, and 'La raison d'etre,' can relief be had from the explosions, and loss by smoke, cinders and sparks, cease to affect the accounts for operating expenses."

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SEND FOR FULL DESCRIPTIVE CATALOGUE.

LONDON: CHARLES GRIFFIN & COMPANY, LTD., EXETER ST., STRAND, W.C.

THE INCORPORATION OF AN OLD ESTABLISHED BUSINESS.—The business conducted by, and under the name of, M. T. Davidson, 154 Nassau street, New York, for the past twenty-five years, in the manufacture of steam pumps, condensers, etc., was recently incorporated under the name of M. T. Davidson Company. The incorporation causes no change in any way in the conduct of the business, the company consisting of Mr. Davidson and the heads of the several departments who have been associated with him for many years.

BOILER DRAFT.—The B. F. Sturtevant Co., Hyde Park, Mass., states that "No greater waste occurs in modern steam-boiler practice than that which is inherent in the employment of a chimney for the production of draft, namely, the loss of heat in the escaping gases. As the chimney depends for its action upon the maintenance of a temperature difference between the internal gases and the external air, it is manifest that, with a chimney, this waste can never be eliminated. It may be palliated, it is true, by the building of higher chimneys, so that the same intensity of draft may be obtained with a lower stack temperature. But such means of providing for the utilization of the otherwise waste heat is expensive. For instance, if, with an external temperature of 60 degrees and an internal temperature of 500 degrees, sufficient intensity of draft is produced by a chimney 100 feet high, it will require a height of 175 feet to produce the same draft when the temperature of the gases is reduced to 250 degrees. In addition, the means provided for extracting this heat will increase the resistance, and provision for overcoming the same will have to be made by greater chimney height. In the case of a fan, however, the power expended as measured in heat units necessary to produce the same results may, under ordinary conditions, be only about one seventy-fifth of that necessary with a chimney. In other words, the fan renders available for utilization practically all of the heat wasted by the chimney while it possesses the further advantage of readily creating the additional draft required when heat-abstracting devices are introduced. Messrs. Donkin and Kennedy, in seventeen independent boiler tests, found the heat lost up the stack when no economizer is used to range between 9.4 percent and 31.8 percent of the total heat of combustion. As it is not practicable to cool the gases to atmospheric temperature, it is evidently impossible to utilize all the heat, but the ordinary economizer should, with mechanical draft, show a saving of between 10 and 20 percent."

THE NEW YORK OFFICE of the B. F. Sturtevant Company, Hyde Park, Mass., has been removed from 131 Liberty street, to the new Engineering Building, 114 Liberty street, where much better facilities are provided for conducting the company's rapidly increasing business.

MATTESON & DRAKE, manufacturers of the "Star" condenser packing tool, have removed their offices from 506 Bourse, Philadelphia, Pa., to the Importers' and Traders' Building, 59-61 Pearl street, New York. This firm will retain representation in Philadelphia with Elisha Webb & Son Company, corner Chestnut and Water streets.

MR. GEORGE B. FOSTER, who was formerly in charge of the Wagner-Bullock Sales Agency in Chicago, and recently the Assistant Sales Manager of the Allis-Chalmers Company, is now connected with the Power Improvement Company of Milwaukee, at the Chicago Office, Fisher Building. The Power Improvement Company being Industrial and Commercial Engineers is prepared to take contracts for power plants of any capacity. It is also making a specialty of industrial and water works installations.

THE CASE PROPELLER WHEEL.—A. Wells Case & Son, Highland Park, Conn., makers of the Case outward thrust propeller wheels, are receiving flattering testimonials on the good results obtained from the use of their wheels. The Jacksonville Towing and Wrecking Company says that the Case wheel placed on their steamer *Admiral Dewey* runs easier and drives the boat faster with a somewhat reduced consumption of coal than was the case with the old wheel. A Case propeller wheel furnished the steamer *Picayune*, owned by M. T. Doullet, New Orleans, La., last September, had given perfect satisfaction and increased that vessel's speed one mile an hour on less coal consumption. The government tug *Richard Caswell* at Wilmington, N. C., is giving perfect satisfaction with a wheel furnished by this firm. C. L. Myers, manager of the Peninsular & Occidental Steamship Company at Jacksonville, Fla., says that a Case wheel on the steamship *Martinique* of that line has given very gratifying results in increasing that vessel's speed and in making her more easy to handle. The Case propeller wheels are not a new product, as they have been on the market for many years.

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BUSINESS NOTES.

GREAT BRITAIN

"LASCAR" METALLIC PACKING, and asbestos and rubber goods of all kinds, are manufactured by Robert Beldam, 79 Mark Lane, London, E. C. Mr. Beldam states that he makes special quotations for export trade.

THE REFRIGERATING MACHINERY made by J. and E. Hall, Limited, 23 St. Swithin's Lane, London, E. C., is operated on the carbonic anhydride system. These machines are stated to occupy the least possible space in both marine and land installations.

MESSRS. CLARKE, CHAPMAN & Co. have supplied their windlasses, winches, capstans, pumps, ash ejectors, lifeboats, or electric installation to the following steamers recently launched: *Den of Ruthven, Heliopolis, Alice, Peiho, Alexandra* (Royal yacht), *Strathdon, Miranda, Tabaristan,* and *Victor.*

AMONG THE NAUTICAL AND SCIENTIFIC INSTRUMENTS manufactured by Heath & Company, Limited, Crayford, London, are Bell pattern navy sextants; Borda French metal sextants; Hezzanith prism binoculars with removable prisms; Hezzanith binoculars, army and navy pattern; Hezzanith navy telescopes; Hezzanith binnacles, navy and mercantile pattern; Hezzanith liquid compasses; sounding machines, barometers, etc.

THE CASTNER-KELLNER ALKALI Co., which about a year and a half ago established new chemical works at Wallsend-on-Tyne, have not been slow to discover and appreciate the economic value of their Tyneside location, and we understand they are now on the eve of further developments there. The directors are reported to have just completed arrangements for the purchase of additional land, an extra supply of electricity, and the necessary new plant, the result of which will be almost to double their present output of chemical products. Another Wallsend development, thanks to cheap electricity and available land, is that of the British Aluminum Co., which are reported to have secured a site near the Parsons Turbine Works, where they intend to lay down plant capable of turning out nearly 2,000 tons per annum, a figure not yet reached in this country. The whole of the plant will be worked by electricity, and the erection of the establishment, it is expected, will soon be begun.

THE CROMPTON SILENT ASH HOIST has been fitted to the steamers *Hermes* and *Gorsefield.*

WHAT IS PERHAPS THE LARGEST reversible propeller yet made has just been ordered from Gaines Reversible Propeller Co., Riverside Works, Putney Embankment, S. W. This propeller will be 5 feet in diameter, and is for a boat of 250-b.h.p., its engine running at 400 r.p.m. Other large propellers recently estimated for include one for a 200-h.p. motor at 300 r.p.m.; 180-h.p. at 400 r.p.m., and one for 150-h.p. at 300 r.p.m.

"COG WHEEL BRAND PHOSPHOR BRONZE, rolled and drawn," is made by Phosphor Bronze Company, Limited, 87 Sumner street, Southwark, London, S. E. The company states that most of the leading engineers have during recent years realized the valuable qualities of rolled and drawn phosphor bronze for a variety of purposes, but that as many still seem ignorant of these properties, while the reduced prices have removed all objections to extensive application, the company is publishing a short description of the material. As the result of tests it is seen that rolled or drawn phosphor bronze possesses a unique and remarkable quality: its elasticity is absolute practically up to breaking stress; that is to say, the metal in these forms may be exposed to strains only a few tons below the breaking weight, without permanent set or deformation of any kind. As the limit of elasticity of the material will be seen to be higher than the breaking strain of the best mild steel, it follows, according to the manufacturer, that rolled phosphor bronze is the most reliable alloy extant, not only where a maximum of resistance to corrosion is demanded, but also for purposes where mild steel in point of strength leaves something to be desired. As factors of safety are properly based on the limits of elasticity of materials, with a due regard to an efficiency of elongation, and as such limits are on an average only one-half of their breaking strains, it will be seen that such factors of safety may, in the case of rolled or drawn phosphor bronze, where elastic limit and breaking strain are practically identical, be safely reduced to about one-half their ordinary magnitude, and that thus, in spite of higher price, rolled or drawn phosphor bronze will be the safest as well as the cheapest material for many purposes.

AJAX MANGANESE BRONZE

The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality. It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

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etc, etc.

MARINE SOCIETIES.

AMERICA.

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
12 West 31st Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

GREAT BRITAIN.

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
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PLASTIC WHITE METAL.
The best filling and lining Metal in the market.

BABBITT'S METAL.
"Vulcan Brand." Nine Grades.

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HELP AND SITUATION ADVERTISEMENTS.

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Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Draftsman wants position with marine engineering or shipbuilding concern. References furnished. Address: 908 North Second street, Harrisburg, Pa.

First-class engineer and draftsman wants position. Clyde trained, good on repairs in drydock, pipe arrangements of large or small cargo steamers and re-boilering steamers. Now chief draftsman; wishes change, States or Canada. Address: *Clyde*, care INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York City.

ENGLISH AGENCIES WANTED

The subscriber, who has had much experience as assistant secretary to one of the largest companies in Great Britain, is desirous of obtaining London and British agencies for American and other manufacturers. He speaks French, German, and Dutch and has had extensive experience in continental business. Best of references. Address: *Agency*, care J. Hewitt & Co., 12 St. Benet Place, Gracechurch Street, London, E. C.

Two Marine Boilers for sale, 15 ft. 10 in. diameter, 10 ft. 5 in. long; 4 corrugated furnaces each. Address the Spencer-Griscom Company, 90 West Street, New York City.

MESSRS. WAILES, DOVE & Co. have had their "Bitumastic" enamel applied to the bunkers, after peak, after trimming tank, fore ballast tank, and engine-room ballast tank, and to ship's side in engine-room of the new steamship *Duke of Albany*, just launched by Messrs. J. Brown & Co.; and their "Bitumastic" cement has been used on the flat of bottom of steamship *Manuel*, just launched by Messrs. Scott, of Kinghorn.

A NEW ELECTRIC HOIST has been placed on the market by Messrs. Kramos, Limited, Bath, manufacturers of portable electrical tool equipment, hoists, controllers, etc. It is claimed for this new hoist that it hangs perfectly plumb at all loads, although suspended with one I-bolt only. This is arranged by having two drums and two motors. The drums both work on the same spindle but in opposite directions. The rope is fixed to the outer side of each and winds toward the center, thereby giving lateral balance. The balance lengthways is obtained by placing the two motors on opposite sides of the drums. Difficulty was at first experienced through the motors running at slightly different speed, consequently the rope gradually wound off one drum on to the other. This was overcome by mechanically interlocking the two gears. Another useful feature about this hoist is that a special pulley can be provided over which the rope can be slung in a few minutes, which converts it into a four-rope machine capable of lifting double the load at half the lifting speed, with half the lifting height. This design has proved so successful that Messrs. Kramos are standardizing it for all sizes from 3 cwt. to 5 tons, and in four different types.

UNIVERSITY OF DURHAM.

Armstrong College, Newcastle-upon-Tyne.

Principal: Sir ISAMBARD OWEN, D.C.I., M.D.

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Matriculation and Exhibition Examinations, September 30th-October 5th.
Opening of Term, October 8th.

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You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

When writing to advertisers please mention International Marine Engineering.

TRADE PUBLICATIONS.

AMERICA.

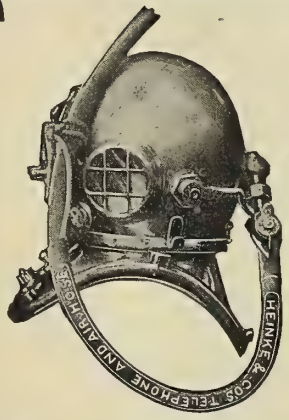
Catalogues Nos. 23 and 24 have just been issued by the Chicago Pneumatic Tool Company, First National Bank Building, Chicago, Ill. No. 23 is a book of more than one hundred pages and is devoted exclusively to Franklin air compressors. It contains descriptive matter and much information regarding air compressors, together with half tone engravings of the machines and parts. Catalogue No. 24 is also a book of more than one hundred pages and covers elaborately the company's well known line of pneumatic tools and appliances, including Boyer and Keller hammers, Little Giant drills, sand rammers and hoists. Both books are printed in colors, conveniently indexed and strongly bound, thus making them books of reference as well as catalogues. A free copy will be sent upon application to those of our readers who will mention this magazine.

"Electric Heating" is the title of an 82-page catalogue, published by the Simplex Electric Heating Company, Cambridge, Mass. "After many years' experience with all the known methods of making electric heaters, we have developed the fact that no durable, reliable heater can be made to operate at the temperatures required for ninety percent of the work electric heaters are made for, unless the electric heating element is so arranged as to have uniform temperature, uniform and rapid conduction of heat to the thing to be heated, and that the heating element be sealed in place. No method covers all these requirements except the "enamel method," by which the heating resistance is embedded and sealed in an insulating coat of enamel burned on to the article to be heated. For eight years, continuous effort has been put forth to develop the enamel and the resistance element to a state that would enable us to secure a product that under all ordinary conditions of use would prove durable for years. That this has been accomplished is evidenced by the fact that electric heaters are no longer a novelty, and that our product is in demand throughout the civilized world; our export business to-day is equal to the entire output nine years ago. While having a large number of patents covering other methods permitting cheaper production cost, after exhaustive trials we have set them aside because they were wrong in principle and unsatisfactory in continued operation. Recent improvements in enamel and the heating element have been material, and insure our product to be thoroughly reliable."

Mason regulating devices are the subject of an illustrated 80-page booklet issued by the Mason Regulator Company, 158 Summer Street, Boston, Mass. This booklet states that the splendid reputation of Mason regulators is the result of twenty-two years of persistent effort backed by large capital and superior manufacturing facilities; that the company's devices were designed by an expert engineer of long and varied experience. The company invites correspondence from persons having difficult or peculiar problems to solve, as it can often suggest an easy, reliable, and economical solution.

Hydraulic forcing presses are described in illustrated catalogue No. 70, published by the Watson-Stillman Company, 26 Cortlandt Street, New York City. This catalogue is an assortment of sheets selected from more than 800 pages of the company's catalogues and circulars on the subject of hydraulic forcing presses. The Watson-Stillman Company makes a very large line of high-pressure tools for all purposes, and if a specific machine of any sort is required, the manufacturer for the company is always prepared to enter into the matter with exceptional facilities. All our readers interested in the subject of hydraulic tools and machinery should ask for a copy of this catalogue.

"Fine Mechanical Tools" are the subject of a 232-page catalogue just published by the L. S. Starrett Company, Athol, Mass. This is a very complete and fully illustrated book, and a copy should be in the hands of every user of such tools. Many new and unique tools are shown by the more than 300 illustrations, and some additions to sizes of former tools have been made. A number of improvements in design will be noticed, and several more pages of useful tables are given than in earlier editions of the catalogue. There are a few changes in prices. The arrangement has been carefully revised, every tool indexed both by name and number, and no pains have been spared to make this the most complete, handiest, and most attractive tool catalogue ever issued. A glance at the table of contents will indicate its wide scope. Among the many instruments of which this company makes a specialty are calipers and dividers of all sorts, center punches, gauges of every description, micrometers, rules and squares of all kinds, steel tapes, and, in fact, almost every kind of instrument of precision. Every tool sent out by the L. S. Starrett Company is warranted to be accurate. If, by chance, any tool should prove to be defective in material or workmanship, it will be immediately replaced.



C. E. HEINKE & CO.

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Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

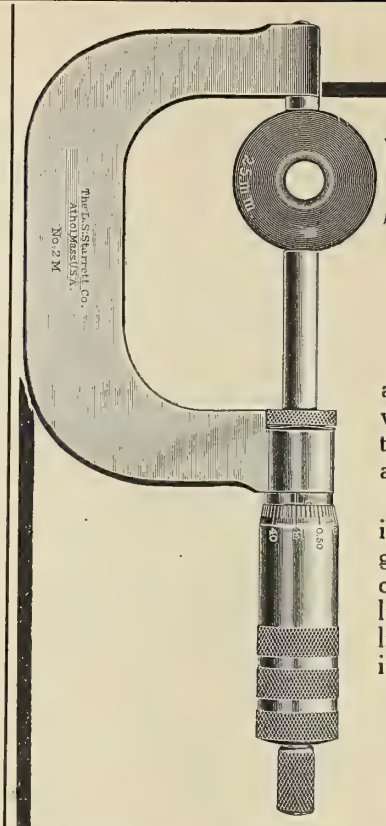
TRADE PUBLICATIONS.

GREAT BRITAIN:

The increased use of lubricants. A tasteful little brochure has just been issued by Messrs. James Light & Son, Limited, the well-known lubricant firm of Liverpool. The booklet is full of information with regard to the various specialties of the company, the data being of the utmost interest to the users of oils, greases, and other lubricants. With the enormous increase of machinery in recent years there has naturally come a larger demand for the articles dealt in by Messrs. Light, the up-to-date character of their business being seen by the many modern uses to which their manufactures are being put. To mention a few, there are steam superheated h.p. cylinders, the forced lubrication of quick-speed engines, suction or producer gas engines.

"The Strongest Chain in the World" is the title of a list published by Weldless Chains Limited, Gartsherrie, Coatbridge. The sling chains referred to in this list are made up of weldless steel chain and solid steel drop-forged hooks. The rings may be welded or solid forged according to dimensions. The connections are made with neat solid-forged steel shackles, secured by rivets and cannot become detached. Among the advantages claimed for these slings over welded iron, are that for corresponding sizes they are much stronger; that to lift a given load they are the lightest slings on the market; that size for size the margin of safety is greater than that of any other slings; and that they are the most durable slings made.

Kramos, Ltd., Bath, Locksbrook Engineering Works, manufacturers and patentees of portable electric tools and electric hoisting machinery, are distributing lists illustrating and describing their electric hoisting machinery. These lists state that it is a common error to suppose that worm gearing can be made efficient when used on small hoists; that with worm gearing the whole reduction from the high speed motor to the low speed rope drum is effected by one small single gear, so that the whole of the power is transmitted through a very small tooth bearing surface, producing enormous friction and causing this type of gear to wear away quickly. This friction is said also to produce serious waste of electricity. With worm gear hoists no brake is necessary, as the worm and wheel lock themselves. The gear, therefore, according to Kramos Ltd., should be spur gear throughout, the wheels machine-cut from steel blanks.



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Our Micrometers have a more exact and easier way of adjustment than by the old method of a movable anvil.

This is obtained by placing over the barrel, a thin, graduated sleeve, which carries the base or zero line, instead of having this line marked on the barrel itself.

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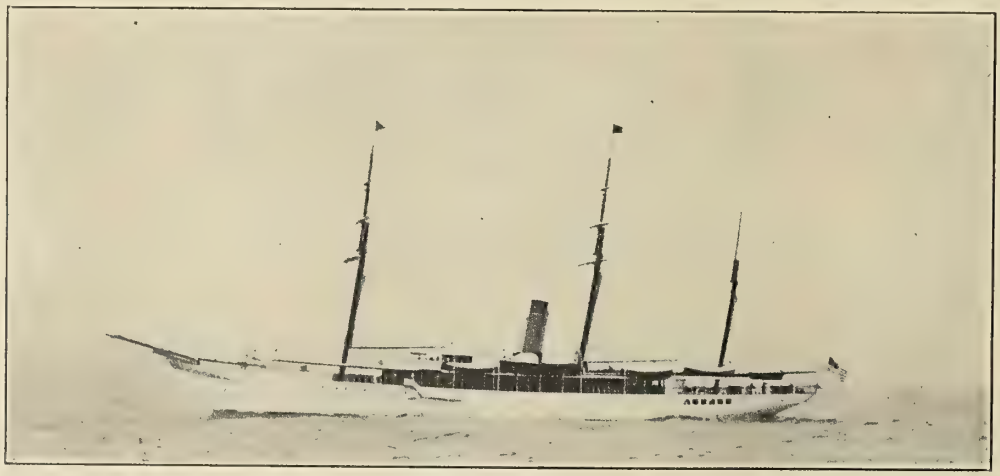

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Fitted with a "Standard" Roller Propeller Thrust Bearing.

This bearing saves coal, oil, wear, time and attention.

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Tenth and Latest Edition

Copy 75-C FREE

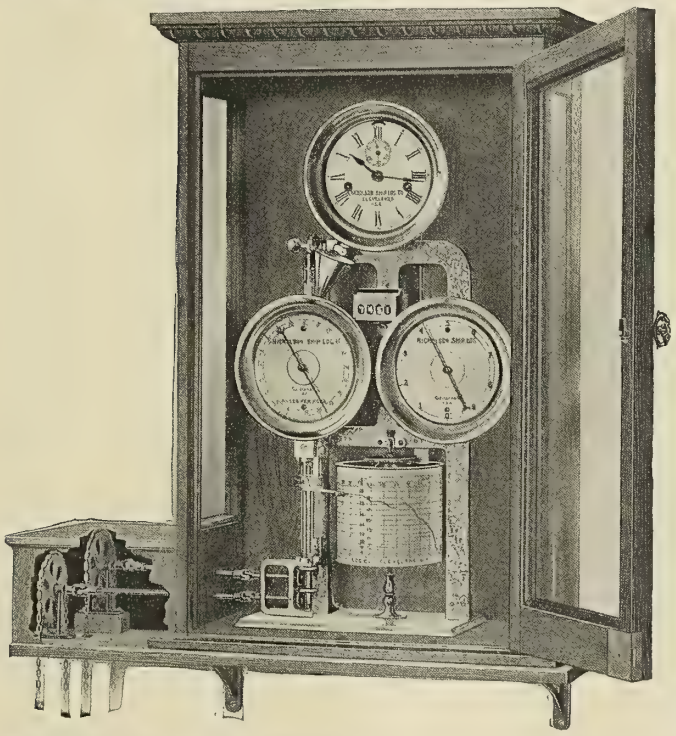
This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks" discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.

Jersey City, N. J.

Sir Theodore Fry & Co., Rise Carr Rolling Mills, Darlington, are issuing a pamphlet of shipbuilders' sections, a free copy of which will be sent to any of our readers mentioning this magazine. Among the sections illustrated are, Bell's patent rest bar for ships' hatchways, etc.; Bell's patent ship hatch rest bar and battening cleet; Bell's registered moulding fitted for bulwark rails; Bell's "Rd," moulding suitable for fitting to ships' bulwarks, hatchway coamings and the like; packing slip or lineo iron; boiler, girder, and ship rivets of iron or steel.



THE Nicholson Ship Log and Speed Indicator is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

It performs four separate and distinct operations viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.

CLEVELAND, OHIO, U. S. A.

Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Bldg., Philadelphia, Pa.

"Wedgring" joint and fittings are described and illustrated in a catalogue issued by Benjamin Parker, Ltd., Westminster Palace Gardens, London, S. W. The "Wedgring joint is designed for coupling copper, brass and other tubes in such a manner to obviate any screwing of the tubes. By this means tubes of a much lighter gauge can be safely used in place of the heavier gauge necessary for screwing.

Oil engines, fixed and marine types, are described and illustrated in a catalogue published by the Griffin Engineering Co., Ltd., Bath. The catalogue states that at the recent competitive tests at Paris under the auspices of the French government, the Special Vermeil Medal was awarded to the Griffin oil engine; twenty-six points of excellence having been given it as against fourteen, the highest given to any other English engine.

"The Griffin patent automatic fuel feeder for suction gas producers" is the title of a catalogue by the Griffin Engineering Co., Ltd., Bath. This catalogue states that simple and reliable as the suction gas producer is at the present moment, it has hitherto lacked the desirable qualification of automatic adaption to meet the varying demands of varying engine loads. This demand is stated by the manufacturer to be met by the Griffin automatic fuel feeder.

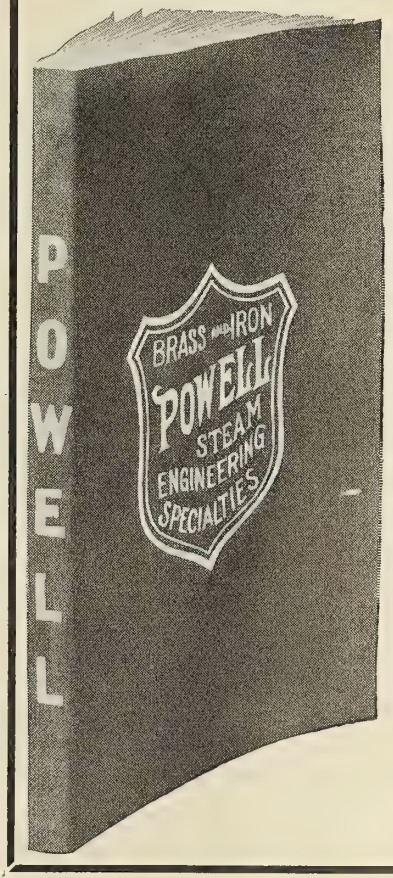
BUSINESS NOTES

AMERICA

Anything that "removes rust in a hurry" from steel and iron work is a valuable device for all engine, boiler and structural steel builders. The Buckeye sand blast machine, made by Walter Macleod & Co., Cincinnati, Ohio, is, according to the manufacturer, indispensable for cleaning castings and for removing rust from all steel and iron work before repainting.

The 45th annual picnic was given by the Lunkenheimer Company, Cincinnati, Ohio, to its employees at White Water Park, July 7th. This park is 25 miles from Cincinnati, and three special trains of fifteen coaches each were necessary to carry the employees and their families to the picnic, which was attended by about 5,000 persons. There was a concert of twenty pieces, and a troupe of vaudeville actors entertained the assembly during the afternoon.

Our Catalog has been mailed



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Write us TO-DAY if you require extra copies or if your copy was side-tracked.

Did you ask your jobber about POWELL Valves before you ordered that last lot?

The Wm. Powell Co.

Cincinnati, Ohio

New York, 95 Liberty St.
Philadelphia, 518 Arch St.
Boston, High & Congress St.
Pittsburg, 419 Fulton Bld.

The Turner Brass Works of Chicago has completed its new factory at Sycamore, Ills., and is now occupying it. The main factory building has a floor space of 40,000 square feet with power and heating plants additional. Improved machinery has been installed and the company's facilities enlarged and greatly improved. The factory is located on the main line of the Chicago & Great Western Railway, and the Galena division of the Chicago & North Western Railway, with side tracks to the factory. As soon as completely settled all orders will be shipped promptly. All correspondence and orders should be sent to the main office, Sycamore, Ills.

Change of name.—By a resolution of the stockholders, approved July 2, 1907, and in conformity with the statutes applying, the name and title of the James Reilly Repair and Supply Company has been changed to the Griscom-Spencer Company, with offices at 90 West Street, New York City. The shops are in Jersey City and Philadelphia, and the supply house at 229-230 West Street, New York City. The president of the new company is Clement A. Griscom, Jr., the vice-president Alexander H. Spencer, and the treasurer M. K. Bowman. This company's shops comprise machine shops, boiler shops, brass foundries and shops for copper smithing, pipe fitting, electrical work, armature winding, painting, etc., for installations and repairs of every character to ships or other floating properties, power plants and stationary work and the manufacturing of feed water heaters, evaporators, condensers, grease extractors, and other specialties.

"Reliable Firms of Boston having over Half a Century of Successful Progress".—Under this heading in the Boston *Journal* of August 2, 1907, appears a write-up showing an advertisement of the American Steam Gauge and Valve Manufacturing Company, 206-220 Camden Street, Boston, Mass., which appeared in the *Journal* more than fifty years ago. This company was organized in 1854 and had its real beginning at No. 4 Charlestown street, where there were employed three men and seven boys. In 1863 the firm moved to larger quarters at No. 2 Linden Street, where they remained until burned out in 1872. Larger quarters were then secured at No. 36 Chardon Street. In 1890 the plant was moved to Jamaica Plain, where it continued fourteen years. In 1904 all departments were combined at 206-220 Camden Street, where to-day nearly five hundred skilled mechanics are engaged in the manufacture of valves and gauges. This company has sales rooms and offices in New York, Chicago, and Atlanta, with agencies in every part of the world.

An American Company.—Captain A. P. Lundin, manager of the Welin Quadrant Davit Co., 17 Battery Place, New York, writes us as follows: "Having lately had my attention drawn to certain rumors that our company is a foreign concern, and that we should be importing our davits from Europe, I should be very thankful if you would repudiate this statement by inserting the following: The Welin Quadrant Davit Co. was incorporated under the laws of the State of New York on October 19th, 1906. The directors of the company are: John McMullan, president (also president of The Atlantic, Gulf & Pacific Company of this city), A. P. Lundin, vice-president and general manager, and R. H. E. Starr, patent attorney of this city, secretary and treasurer, all being citizens of the United States and residents of New York City. So far we have had all of our davits (with the exception of one set) manufactured by the Geo. V. Cresson Co. of Philadelphia, but we have recently made arrangements to have them manufactured on the Pacific coast as well. Of course it is a well known fact that Axel Welin, the inventor of these davits, is a Swede, but we, having acquired the American patent rights against a certain sum of United States money, do not at all think this should reflect upon the business as being a foreign concern, and other nations have not considered this as any reason why they should not adopt a gear as useful as ours."

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

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"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

Opening of the new general office and factory buildings of Keuffel & Esser Co., Hoboken, N. J.,—The formal opening of the new re-enforced concrete buildings which Keuffel & Esser Co., 127 Fulton Street, New York City, the well known manufacturer and importer of engineering and mathematical instruments, has erected at its plant in Hoboken, N. J., took place on July 20. The erection of these buildings was made necessary by the rapidly growing business of the firm. The demand for engineering instruments and drawing materials is greater than it has ever been before and far exceeded the supply, which the company, with its former resources, could produce. The completion of the new buildings has practically doubled the company's facilities. The former general offices of the Company at 127 Fulton Street, New York, had become too small and it was deemed advisable to remove them to the more commodious quarters provided in the new buildings in Hoboken. The building in New York is retained as the New York sales department and show rooms. The new buildings are located at the corner of Adams and Third Streets, Hoboken, N. J., directly across the street from the older portion of the plant. They are of re-enforced concrete, and represent the latest progress in factory design and construction. The buildings are two in number, connected by a two-story structure. One contains the general offices, while the other is devoted entirely to manufacturing. They are practically the same in construction and together cover about 30,000 square feet of ground, nearly equally divided between the two.

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It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

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RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

Several of the larger plants of the United States Steel Corporation have recently replaced their entire vise equipment with the high-speed "Pittsburgh" vise. These vises are manufactured by The Pittsburgh Automatic Vise and Tool Company, Pittsburgh, Pa.

The C. H. Wheeler Manufacturing Company, Philadelphia, Pa., is distributing the following bulletin: The Southern Hydraulic Engineering Co., with offices in Atlanta, Ga., and Birmingham, Ala., has been appointed agents for the products of the C. H. Wheeler Manufacturing Co., Philadelphia. These consist of the Wheeler-Mullan High Vacuum Apparatus. The Wheeler-Pratt Water Cooling Towers. Wheeler-Bar Pumps. The C. H. Wheeler Feed-Water Heaters and The Mullan Suction Valveless Air Pumps. This latter pump is attracting considerable attention in the engineering field. It was first placed on the market about two years ago; already there are over eighty installed, with fifty more in course of construction. As the efficiency of the Parsons or Curtis Turbine is increased 20% when the vacuum in the condenser is raised from 26 to 28 inches, a number of "wet and dry" machines have been placed on the market to secure this result. These invariably consist of two separate pumps however, one for removing water and the other air. As a whole these outfits are cumbersome, complicated, and, both as regards first cost and maintenance, expensive. The Mullan Suction Valveless Air Pump performs the function of removing both air and water itself. As its name implies there are no suction valves, in fact it is so simple in construction that there is practically no chance for anything to get out of order,. A very unique feature of this pump is the construction of the piston, which is composed entirely of brass. It is wide and contains a number of annular grooves. The inventor figured that as the piston fitted very closely, the water accumulating in these grooves would form a film between the piston and cylinder, thereby preventing leakage and undue wear, and his expectations have been more than fulfilled. After two years' continuous service, the first pump showed no perceptible wear of piston or cylinder, due presumably to this water packing; so in order to further investigate the consequences, should the piston in any way become worn, it was removed and its diameter reduced on a lathe until it was 3/32" less than the cylinder diameter; with this apparent handicap the pump was again started and yet maintained a vacuum of 29 inches. Catalogue giving complete description of its workings may be had by addressing the manufacturers direct.

Regarding "Standard" roller propeller thrust bearings, Mr. Stephen P. M. Tasker, Mechanical Engineer, Pennsylvania Building, Philadelphia, Pa., furnishes us with the following data: "In the Standard roller propeller thrust bearing the following may be named as the principal points gained by using this design: 1. Reduction in coal consumption. 2. Increase in speed of vessel. 3. Saving in amount of oil used. 4. Vibration greatly overcome. 5. No water jacket required. 6. No heatng of bearings under most severe service. The construction of the roller thrust bearing consists of rollers held in a solid cage and washers against which the rollers bear. The rollers, as well as the washers, are thoroughly hardened and tempered and ground accurately so that there is no variation in size. The materials and workmanship are of the highest quality, insuring the best results. The rollers and washers are so hard that they cannot be filed, but can only be ground on an emery wheel or cut with a diamond, yet tempered in such a manner that they are not brittle and would bend to a considerable degree without breaking. The pressure of the propeller shaft against the rollers forces them to revolve with ease, instead of adhering, as in the case of the babbittted bearings. This permits much of the efficiency of the engine to be saved that was formerly lost and results in a substantial reduction in coal consumption and increases the speed of the vessel. When the old style babbitted horse shoe bearings are used, much oil is needed to overcome the friction. The roller thrust bearing reduces this very materially; the saving amounting in the case of the steamer *Sagamore* to 85% of oil formerly used. The sticking of the old style horse shoe bearing results in very great vibration throughout the vessel, due to the retarding and releasing of the shaft against the babbitted metal. This cannot be the case when the Standard roller thrust is used, as the motion is a purely rolling one and no retarding takes place under any circumstances. This fact overcomes any necessity for a water jacket, as heating of the standard roller thrust never takes place even under most severe conditions. We have many thousand bearings of this description in actual service, carrying up to several hundred thousand pounds in weight and running at many thousand revolutions per minute, all giving satisfactory service, saving power and showing no wear after seven years of constant use. A large number of our thrusts have been applied to launches and other small vessels as well as all classes of engines and marine construction. We are prepared to furnish our thrust bearings complete, ready to be applied by marine machinists, or if desired, will ourselves apply same to any class of steam vessel."

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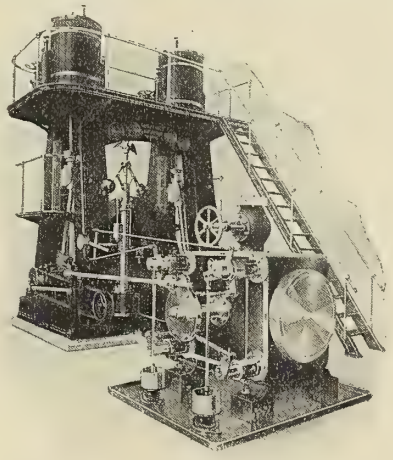

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ANTONIO C. PESSANO, President and Gen'l Manager
GEORGE H. RUSSEL, Vice-President
H. W. HOYT, Vice-President
JOHN R. RUSSEL, Secretary and Treasurer

"The history of Smooth-On, while not very old is interesting. This chemical iron compound was made in 1893 by Vreeland Tomkins, a chemical student and graduate of Rutgers College, the object being to make a chemical iron, that could be easily applied to cracks and holes in iron to make permanent repairs. A compound to make such repairs must metallize practically as hard as iron. It must expand while metallizing, so as to completely fill any opening into which it is introduced and also force itself into the grain of the iron. When metallized, it must expand and contract the same as iron. After two years' work this was accomplished and a chemical compound made and named Smooth-On, which forms the base or starting point for the different Smooth-On iron cements. The above properties make Smooth-On a valuable compound for making chemical iron cements and to this subject, the chemist of the Smooth-On Manufacturing Company has given careful study for twelve years and has succeeded in compounding the valuable iron cements known so generally throughout the world as Smooth-On. Smooth-On iron cement was first prepared only in powder form and used, by mixing with a certain percentage of water, to the consistency of stiff putty and immediately applied to cold metal, as it metallizes rapidly, in a few hours becoming as hard as iron, with the same color and appearance and the same power of expansion and contraction. This cement, while very useful where small amounts of cement were required, necessitated a hurrying of the work, when handling large quantities of the cement, to get through before the cement got too stiff or hard to work. By further experiments a solvent was found for the above cement which would evaporate upon the application of heat; this enabled Smooth-On to be prepared and kept in paste or fluid form until wanted for use. The fluid preparation of Smooth-On greatly enlarged its use, as this cement may be applied to hot or cold metal. There are now six Smooth-On preparations, each made for a special purpose. Smooth-On for foundrymen, the first Smooth-On iron cement made, is for removing blemishes from iron or steel castings and is used for such purposes by the largest iron and steel manufacturing concerns throughout the world. Smooth-On compound for engineers, the second of the Smooth-On iron cements, is for making repairs on steam or hydraulic work, when the application can be made to cold metal. One example will show the value of this cement. Seven years ago the seven million gallon centrifugal pump at the New York navy yard split almost in two, due to a sudden strain. The crack was 20 feet long, and it was ascertained from the makers of the pump that it would take 26 weeks to produce duplicate castings to replace the broken parts. It was suggested by the engineer in charge who had used Smooth-On compound that he could repair the pump with this cement, and permission was given. It was repaired successfully in three days and is still giving perfect service. This repair saved thousands of dollars for the United States Government and made a reputation for Smooth-On compound and the engineer that applied it. The third Smooth-On iron cement placed upon the market is Smooth-On joints. This cement is for making joints on cast iron hub joint pipes. It makes a very strong and tight joint and one that will stay tight. This cement was used on the hub joints at the New York State buildings at Poughkeepsie, N. Y. Smooth-On elastic cement, the fourth Smooth-On product, was a great step forward in the compounding of iron cements, as this cement is prepared in fluid or paste form and kept in that state until it is wanted for use, by packing in air tight cans. This fluid cement will run into very small cracks, holes or seams, filling them with iron, and by many it is called magic iron. A can of this cement may be purchased in nearly every seaport of the world, as it is universally used by steamship engineers for making permanent repairs. The following is an interesting example showing the value of this cement. At the time of the Spanish war the United States Transport *McPherson* arrived at Jersey City from Cuba. with leaking seams in her boilers. To stop these leaks in the ordinary way would have delayed the sailing of the ship. By applying Smooth-On elastic cement to the boiler seams, the leaks were quickly and permanently stopped and the steamer sailed on schedule time. The fifth Smooth-On specialty, Smooth-On iron cement sheet packing, is a combination of Smooth-On iron cement No. 1 and rubber. The Smooth-On in packing has the same action as when in the powder form, namely of expanding slightly when it comes in contact with steam, hot or cold water. This makes it a valuable packing, as it completely fills any uneven places in the flanged faces, making a perfect joint instantly. This packing is extensively used in the engine room of the Brooklyn Bridge. The sixth Smooth-On specialty is the Smooth-On coated corrugated steel gasket. It is made from specially prepared, mild tough steel, stamped with concentric corrugations and then coated with Smooth-On iron cement. For flanged joints, they will withstand any pressure or temperature that the pipe will stand and are not affected by steam, water, oil, air or ammonia. The above gaskets are being successfully used under 3,000 lbs. pressure in hydraulic mining.'"

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London: CHARLES GRIFFIN & Co., Ltd., Exeter Street, Strand.

The Buffalo Gasolene Motor Company, Buffalo, N. Y., announces that the Motor Boat Supply Company, 107 Liberty Street, New York City, will in the future act in the capacity of selling agent, covering the territory formerly handled by Mr. H. L. Edge.

Mortuary Vaults and Anti Marine-Burial Assurance.—In spite of the great increase in the size and magnificence of ocean-going passenger steamers during recent years, there is one feature which has not kept pace with the advance of improvements in the service in general. We mean facilities for taking care of the bodies of passengers who die at sea. The present mode of disposing of the bodies of passengers who die on board ship is either to drop them overboard, or in some unsatisfactory or make-shift manner to preserve and land them; in the latter case with much trouble to the steamship company and at great expense to the family of the deceased. To remedy this state of affairs, Mr. Walter S. Upshur, Newport News, Virginia, has invented and patented a mortuary vault and coffin, and has copyrighted a form of anti marine-burial assurance to be issued to passengers on steamers installing the mortuary vaults and coffins. In the contract, the steamship company using Mr. Upshur's mortuary vaults, will in the event of the passenger "dying aboard said steamship during said voyage, preserve his body aboard said steamship until arrival at the port of————, where it will be embalmed, placed in a hermetically sealed metallic casket and disposed in the receiving vault for a period of ten days, or such less time as may be necessary for the————steamship company to communicate with" the relatives of the deceased, and to ascertain what disposition they wish to be made of the body. The steamship company also agrees at the expiration of the ten days either to inter the body in an appropriate manner free of additional cost at the port of arrival, or, at the request of the relatives of the deceased to return it to the port from which the dead passenger embarked. The suggested cost of this assurance is $5.00. The vaults will be constructed of mild ship steel, commercial shapes being used. The refrigerating coils are to be made of wrought iron galvanized pipe, secured in racks on the inside of the frame, and the vaults will, of course, be air-tight and furnished with a suitable thermometer. The caskets will be seven feet long, lined with zinc and made water-tight. The public has been made familiar through the newspapers during the past few months with several very distressing cases of burial at sea, so that this invention of Mr. Upshur's is likely to attract the favorable attention of steamship companies, as well as passengers.

The semi-annual report of the Chicago Pneumatic Tool Company for the six months ending June 30th shows a net profit for that period, after deducting $108,633.58 for depreciation, etc., of $398,894.54. During the six months the company has paid in dividends $125,575.66. The surplus June 30th, 1907 was $1,069,228.32.

The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, is building a new mill of three times the capacity of its present plant to take care of its trade which is rapidly increasing on account of the large number of orders for hollow and solid staybolt iron from the railways and boiler makers in the United States, Canada, Mexico, Japan and other foreign countries.

BUSINESS NOTES.

GREAT BRITAIN

The Pulsometer Engineering Co., Ltd., Nine Elms Iron Works, Reading, have opened offices at 206 Corn Exchange Buildings, Cathedral Street, Manchester.

Bommer spring hinges were supplied for use in both the big Cunarders *Lusitania* and *Mauretania,* through the London agent, Mr. W. P. Notcutt, 8 White Street, Moorfields, E. C. These hinges are made by Bommer Brothers, Brooklyn, New York.

The Austro-Hungarian government has contracted with Messrs. Yarrow and Company (Limited), of Poplar and Glasgow, for the construction of two exceptionally high-speed shallow-draught gunboats, propelled by internal combustion engines. These vessels are to be in all essential particulars similar to *Mercury II,* which was purchased by the British Admiralty last year, and on board which, it will be remembered, the King and Queen took a trip during Cowes week.

"Specify in your next contract for Keenan's patent non-conducting composition, the best covering for high pressure and superheated steam," is the advice given by Matthew Keenan & Company, Ltd., Tredegar Road, Bow, London, E., which firm is claimed to be the oldest established and most up-to-date firm of boiler and steam pipe coverers in Great Britain. This concern makes marine work a specialty and executes contracts for covering of all kinds in any part of the world.

Particularly adapted for Court Houses, Banking Institutions, Church Aisles, Hospitals, Libraries, Business Offices, Restaurants, Vestibules, Elevators, Kitchens, Laundries, Pantries, Bathrooms, and for Steamships and floating property generally.

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PITTSBURGH, PA., 913-915 Liberty Avenue
SPOKANE, WASH., 163 S. Lincoln Street
LONDON, E. C., ENGLAND, 58 Holborn Viaduct

Three Cochran boilers, with patent seamless furnaces, were supplied by Messrs. Cochran & Co., Annan, Ltd., for the Trinidad floating dock recently launched by Messrs. Swan, Hunter & Wigham Richardson, Ltd., Wallsend.

The Contraflo condenser, made by the Contraflo Condenser Company, Ltd., 3 and 5 Crown Court, Old Broad St., London, E. C., is patented in Great Britain and abroad. There are 250,000 sq. ft. at work or on order. The advantages claimed are, minimum cooling surface, minimum circulating water, high vacuum, and high thermal efficiency.

Edward Hayes, Watling Works, Stony Stratford, writes International Marine Engineering that he has just held the speed trial of another of his 51 ft. steam launch tugs, which he has built for the Brazilian navy. This tug is 11 ft. wide and has a draft of about 4 ft. She exceeded her specified speed by 1¼ miles, averaging 12¼ miles per hour. This launch is fitted with one of the Hayes standard 8 x 16 x 10 C. S. C. sets of machinery and return-tube boiler built to Lloyd's survey for 120 pounds. She has roomy cabins fore and aft, and polished teak deck fittings. She showed herself to be very easily handled, quick on the rudder and a good rough water boat. The same firm is completing another boat for the Chilian Customs.

The Submarine Signal Company, 88 Broad Street, Boston, Mass., and 72 Victoria Street, London, has received cable advices that the British Board of Trade has authorized Trinity House (the light-house establishment of Great Britain) to begin the equipment of light-vessels in the Eiglish Channel with submarine bells. This action opens to the company the market of the greatest maritime nation in the world. The delay has been due to a contest between the shipowners and the government as to whether payment for this aid to navigation should be made from light dues paid by the vessels or from the national exchequer. The government, recognizing the great advantage of submarine signals to the navy as well as to the commercial marine, has determined to install bells at its own expense. The German agents of the Company are installing the receiving apparatus on one of the cruisers of the Russian navy now at Kiel. Captain Osterhaus of the flagship *Connecticut* reports that he made a successful test of the submarine signals while passing Nantucket Shoals, getting the bell at a distance of eight miles. He says: "This, my first experience with the bell, was most satisfactory and encouraging."

On July 10th, in the presence of a large gathering, including official representatives of the Greek community in Great Britain, a torpedo-boat destroyer built for the Greek Government was launched from the yard of Messrs. Yarrow & Co. (Limited), at Poplar, and received the name of *Lonhi*. The Greek Minister, who named the boat on behalf of the King of the Hellenes, was ccompanied by Mme. and Mlle. Metaxas, and the staff of the Legation. After the religious ceremony by the Rév. Great Archimandrite Pagonis, the Greek Minister made a speech suitable to the occasion, and the launching took place amid the cheers of the company. The dimensions of the boat are: Length, 220 ft.; breadth, 20 ft. 6 in.; and depth, 12 ft. 4 in.; i.h.p., 6,000; contract speed, 31 knots. The *Lonhi* is the third vessel of this class built by Messrs. Yarrow & Co. (Limited) for the Greek Government.

Launch of a patent "trunk" steamer at Stockton.—On August 9th Messrs. Ropner & Son, Stockton-on-Tees, launched from their yard a Steel Screw Steamer of the following dimensions: Length, 365 ft. Breadth, 50 ft. Depth, 23 ft. The vessel is built to the highest class of British corporation, to the order of Messrs. R. Ropner & Co., West Hartlepool, and is fitted with the builders' patent improved trunk deck, with clear holds and deep frames. The saloon house with accommodations for captain and officers and a house for engineers will be fitted up on trunk deck, with the crew in T. G. forecastle, and apprentices aft. The vessel has double bottom for water ballast on the cellular principle, also in the fore and after peaks. The deadweight carrying capacity will be about 6100 tons on her summer freeboard. The vessel will be fully equipped with an up-to-date outfit, having a quick warping windlass, stockless anchors, steam steering gear amidships, with powerful screw gear aft. The appliances for loading and discharging expeditiously are very complete, and include extra derrick posts and double derricks, nine steam winches, steam being supplied by a horizontal multitubular donkey boiler. The engines will be of the triple expansion type, supplied by Messrs. Blair & Co., Ltd., of about 1500 I. H. P., steam being supplied by two large main boilers, at a working pressure of 180 lbs. per square inch. The christening ceremony was gracefully performed by Mrs. Wm. Ropner, Ambleside, West Hartlepool, who gave the vessel the name of *Coleby*.

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The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality, It is guaranteed to exceed United States Government specifications.

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INSTITUTE OF MARINE ENGINEERS, INCORP.,
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

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No advertisements accepted unless cash accompanies the order

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word for the first insertion. For each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. But no advertisement will be inserted for less than 75 cents (3 shillings). Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Foreman machinist wants position. Has had experience on engines and all kinds of marine work; is fully competent in handling men. Address: **Competent,** care International Marine Engineering, 17 Battery Place, New York.

Two Marine Boilers for sale, 15 ft. 10 in. diameter, 10 ft. 5 in. long; 4 corrugated furnaces each. Address the Griscom Spencer Company, 90 West Street, New York City.

ENGLISH AGENCIES WANTED

The subscriber, who has had much experience as assistant secretary to one of the largest companies in Great Britain, is desirous of obtaining London and British agencies for American and other manufacturers. He speaks French, German, and Dutch and has had extensive experience in continental business. Best of references. Address: *Agency,* care J. Hewitt & Co., 12 St. Benet Place, Gracechurch Street, London, E. C.

Messrs. Richardsons, Westgarth, & Co., Ltd., have installed in the boiler-making department of their Scotia Engine Works, Sunderland, a hydraulic stationary riveter supplied by Messrs. Hugh Smith & Co., Glasgow. The machine is of a new type driven by an electric motor, and closing rivets 1¼ in. in diameter.

Important orders for John Abbot & Co., Ltd.—John Abbot & Co., Ltd., of Gateshead, have been successful in securing a contract for the supply of chain cables to the Royal Italian Navy over the next two years. This is the first time this contract has been placed on the Tyne. The well-known Gateshead establishment is at present engaged on two large outfits of chains and stockless anchors for vessels now building at Messrs. Barclay, Curle's Yard, Glasgow.

THE PHOSPHOR—BRONZE CO. LTD.

Sole Makers of the following ALLOYS:

PHOSPHOR BRONZE.
"Cog Wheel Brand" and "Vulcan Brand." Ingots, Castings, Plates, Strip, Bars, etc.

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"Cog Wheel Brand." The best qualities made.

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PLASTIC WHITE METAL.
The best filling and lining Metal in the market.

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"PHOSPHOR" WHITE LINING METAL.
Fully equal to Best White Brass No 2, for lining Marine Engine Bearings, &c.

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Cheaper than any Babbitt's, and equal to best Magnolia Metal.

87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

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A1. "LASCAR" Packing.

Manufacturer of all classes of H.P. Packings, also of the well known No. 8 Metallic Pump and Low-Pressure Packing.

The above Packings are used by nearly all the leading Steamship-Lines in Great Britain and also by the Admiralty.

Trade "LASCAR" Mark.

MANUFACTURER OF ALL KINDS OF

ASBESTOS & RUBBER GOODS.

Contracts running at present time with several of the leading British Railways.

SPECIAL QUOTATIONS GIVEN FOR EXFORT.

Sole London Agents for the famous "GARLOCK" & "WILPACO" PACKINGS.

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79, MARK LANE, LONDON, E.C.

RAINBOW PACKING

CAN'T
BLOW
RAINBOW
OUT

Will hold the highest pressure

DURABLE
EFFECTIVE
ECONOMICAL
RELIABLE

State clearly on your packing orders **Rainbow** and be sure you get the genuine. Look for the trade mark, three rows of diamonds in black in each one of which occurs the word **Rainbow.**

PEERLESS PISTON and VALVE ROD PACKING

You can get from 12 to 18 months' perfect service from **Peerless Packing.** For high or low pressure steam the **Peerless** is head and shoulders above all other packings. The celebrated **Peerless Piston** and **Valve Rod Packing** has many imitators, but no competitors. Don't wait. Order a box today.

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Johannesburg, South Africa—2427 Mercantile Building.

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Rochester, N. Y.—55 East Main St.
Los Angeles, Cal.—115 South Los Angeles St.
Baltimore, Md.—37 Hopkins Place.

Copenhagen, Den.—Frederiksholms, Kanal 6.
Sydney, Australia—270 George St.

TRADE PUBLICATIONS

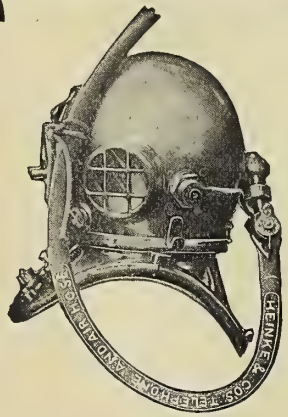
AMERICA

Pneumatic tools are described and fully illustrated in a 32-page catalogue, issued by the Cleveland Pneumatic Tool Company, Cleveland, Ohio. This catalogue states that the Cleveland line of pneumatic tools and appliances has been in general use for more than eight years. Regarding this company's "Cleveland," "Ajax" and "Jumbo" riveting hammers, the claim is made that they are the most powerful hammers on the market, that vibration is reduced to a minimum, rendering them easy to hold. The company makes fifteen sizes of riveting hammers. Special attention is called to the Cleveland four-cylinder air drills and to the simplicity and few parts which enter into their construction, making them durable and easy to maintain. This company's reversible and non-reversible drills are each made in five sizes. Among other points of superiority claimed for them is the statement that they contain one-third less parts than any other four-cylinder machine.

"A Few Points on Grinding" is the title of an interesting pamphlet of 40 pages published by the Norton Grinding Company, Worcester, Mass., a free copy of which will be sent to every reader who will mention this magazine. The introduction to this pamphlet states that grinding wheels play a very important part in our mechanical industries, but that there are probably more erroneous theories regarding them than about all other tools with which the mechanic has to deal. It is also stated that this ignorance is not confined to the work shop, but that it is found in the superintendent's office, and that the purchasing agent is also sometimes in error in his diagnosis of grinding wheels. The statement is made that book compilers are perhaps the most persistent in perpetuating erroneous ideas regarding grinding wheels, as they copy over and over again the old tables which convey the impression that there is some one surface speed at which all grinding wheels should run. This booklet has been written by the president of the company, Mr. Charles H. Norton, with the object of clearing up all these common erroneous ideas, and the wise shop manager or mechanic who wishes to be abreast of the times in all that pertains to an important part of the art and design of machine construction, will do well to send for a copy of this pamphlet.

Hydraulic pumps and accessories are the subject of illustrated catalogue No. 71 just issued by the Watson-Stillman Company, 26 Cortlandt street, New York City. This catalogue should be in the hands of every user of hydraulic machinery, and a free copy will be sent to all readers mentioning this magazine. The general preface states: "Our printed matter, consisting as it does of over 800 illustrated sheets, and covering machinery for a great variety of purposes, we find is too large and varied for general distribution; so we prepare a series of sub-divided catalogues, among which this is one. We desire to say that the tools shown herein are all thoroughly guaranteed in every particular, and the greatest possible care is used to make them absolutely reliable. We make a very large line of high-pressure hydraulic tools for all purposes only a portion of which are represented by printed matter, and if a special machine of any sort in this line is required we are always prepared to enter into the matter with exceptional facilities, and produce the article in the best possible manner."

Foster superheaters are described and illustrated in a handsomely illustrated 44-page catalogue, which the Power Specialty Company, 111 Broadway, New York City, is distributing. Regarding this superheater, the company states that those features which distinguish it from all other types are the results of actual experience in designing and building superheaters. The advantages of superheating have been recognized for more than fifty years, but not until recently has steam engine and steam turbine construction advanced to the point where there are no drawbacks to its use. Four or five years ago the superheater installations in America were rare, but, according to an estimate made by the Power Specialty Company, the superheaters now in use and under construction in America amount to considerably over a million horsepower upon the basis of 30 pounds of steam hourly per horsepower. The early limitations to superheated steam were largely due to the want of mineral oils for lubrication and metal packing for joints and stuffing boxes, all of which are now incidental to good practice. Boilers not designed for high pressure, or old boilers which have been weakened by use may be fitted with superheaters, according to the Power Specialty Company, and thus rendered serviceable at a moderate cost and without the waste of time and inconvenience incidental to renewal.



C. E. HEINKE & CO.

ESTABLISHED 1828.

87, 88 & 89, Grange Road,
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Manufacturers of Every Description of

DIVING APPARATUS

For Naval, Harbour, Dock, Salvage Works, Pearl and Sponge Fisheries. - - -

PATENT SUBMARINE TELEPHONES, ELECTRIC LAMPS, etc., etc.

Cables.—"HEINDIG, LONDON."
Codes.—A.B.C. 4th & 5th Editions.
Telephone—1998 HOP.

Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Type S-12 mono-rail crane or carrier is illustrated in a folder issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York. The company states that this hoist is made in 2 or 4 tons capacity, and designed for high lifting and traveling speeds. It is stated that it occupies a minimum amount of head room, the distance from the inside of the hook at the top of the lift to the bottom of the I-beam being only 33 inches. The claim is made that with the company's automatic track switches, which can be thrown from the operator's cab without stopping the travel, that this crane is capable of transporting a great quantity of packages in any given time.

"Marine Boiler Deterioration, its Causes, Effects and Prevention," is the title of a 48-page pamphlet, published by the Bird-Archer Company, 90 West street, New York City, a free copy of which will be sent to all of our readers mentioning this magazine. "That pitting, corrosion and accumulations of scale and grease are the chief causes of marine boiler troubles and really determine the life of a boiler is a matter of common knowledge with all marine engineers. That there is a reliable, simple and complete remedy for these troubles is not so well known. It is the purpose of this book to set forth in a concise and practical manner the origin and effects of these troubles, and to show how they can be completely and safely eliminated. So many and various have been the explanations of the causes and effects of interior boiler deterioration that it must be of interest to the progressive and enlightened engineer to have the consensus of opinion of the best authorities presented in brief form, undisguised by chemical symbols, in language intelligible to the practical engineer who may have worked his way up from 'dolly boy' or rivet heater by constant attention to real engines and boilers, leaving him little time for scientific research. Many things here stated will be known to some of the readers. Let them pass these over, remembering that they may be new to others, and that this little work is meant for all those whose life is measured by the engine room counter and the 'stand-by' bell. We have also included throughout this book many tables, formulæ, rules and much general useful information, which we trust our readers will find valuable for reference and calculation."

CENTER PUNCH
AUTOMATIC ADJUSTABLE-STROKE

No hammer needed—a downward pressure of the hand on the cap releases the striking block and makes the impression.

By turning the cap the force of the stroke is adjusted, and light or heavy indentations may be made as desired.

A handsome tool, simply and strongly made.

Patented Feb. 12, 1907.

Send for Catalog No. 17 L of Fine Mechanical Tools.

The L. S. Starrett Co.
Athol, Mass., U. S. A.

12 Years with Cramp Ship-Building Co.
Chief Draftsman at Norfolk Navy Yard, and
Recently with Inspector of Machinery, U. S. N.

STEPHEN P. M. TASKER

CONSULTING AND LICENSED
MARINE ENGINEER

Construction Superintended
Designs, Progress and Trials Reported Upon

Will Take Agency and Represent a Few
High-Grade Specialties

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¶ I SUPERINTEND CONSTRUCTION and report on designs, progress trials and tests. Material accurately tested; ships, engines and machinery examined. Complete plans and estimates furnished. Draftsmen and Engineers of the highest ability are in my employ and at your disposal. Will undertake high-class work at the shortest notice. ∴ ∴

¶ FROM A LARGE MARINE ACQUAINTANCE AND SEA EXPERIENCE, AM IN THE BEST POSITION TO ADVERTISE AND HANDLE A FEW HIGH-GRADE SPECIALTIES

Tenth and Latest Edition

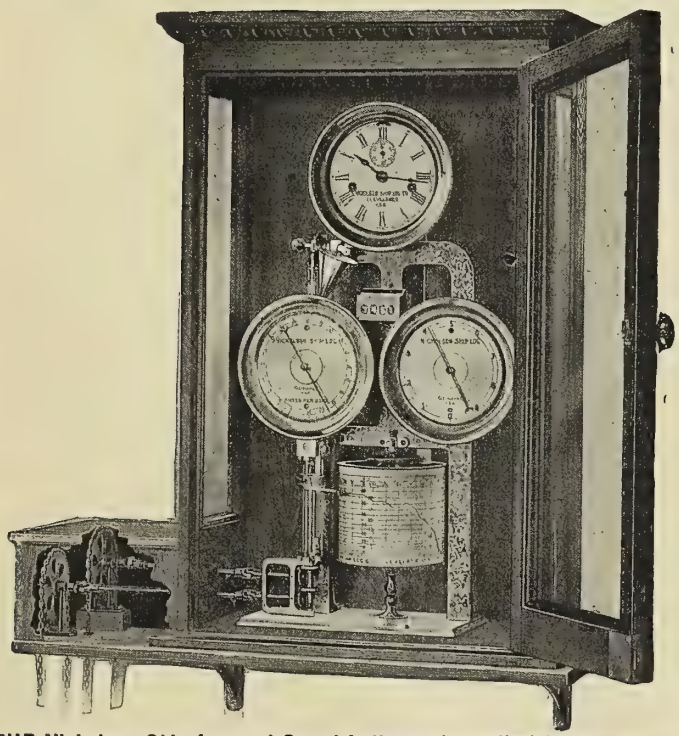
Copy 75-C FREE

This booklet is brimful of just such information as you can use in your daily work. Modern methods of lubricating various kinds of machinery, little engine room "kinks," discovered by resourceful engineers—over 80 pages in all, 12 pages on marine lubrication.

Write for FREE copy No. 75-C

Joseph Dixon Crucible Co.
Jersey City, N. J.

Lunkenheimer blow-off valves are the subject of an illustrated catalogue published by the Lunkenheimer Company, Cincinnati, Ohio, manufacturers of valves of every kind for every pressure. The catalogue states that the composition of metals used in Lunkenheimer valves possesses all the qualities necessary for strength and durability, ensuring endurance of long and severe usage, and that the high grade of workmanship is detected at a glance, the valve presenting a neat and finished appearance.



THE Nicholson Ship Log and Speed Indicator is a radical departure from all other types of Logs. It has no trailing line outside, and is not connected with the Engine, but is built in, and becomes a part of the Ship.

It performs four separate and distinct operations, viz.: Keeps the time, shows at all times the speed in knots or miles per hour, counts the distance traveled, and records the same on a paper chart showing every variation in speed during the trip. The Log can be placed in the chart room, pilot house, or on the bridge, or where most convenient. Send for catalogue.

NICHOLSON SHIP LOG CO.
CLEVELAND, OHIO, U. S. A.
Eastern Agents: BARRETT & LAWRENCE, 662 Bullitt Building, Philadelphia, Pa.

Tobin bronze for pump piston rods and valve stems, disc valves for pumps, linings for pumps, deck bolts and ship fastenings, condenser tube plates, launch shafting, hull plates for yachts, centerboards and rudders, bolts, nuts, screws, rivets, etc., are the subject of a catalogue published by the Ansonia Brass & Copper Company, 99 John street, New York City. The catalogue states that Tobin bronze is a combination of copper with other metals, and that when rolled out it is remarkable for its high elastic limit, tensile strength, hardness and uniform texture.

All of our readers interested in the Panama Canal should write to James L. Robertson & Sons, Inc., 48 Warren street, New York City, mentioning this magazine, and ask for an illustrated pamphlet entitled "Panama Canal, America's Greatest Engineering Feat of the Present Time." Reproductions of photographs are given of scenes along the canal, showing the progress of the work and the difficulties encountered, also a bird's-eye view of the entire route of the canal and pictures showing scenes in the City of Panama, the streets, natives, etc.

One of the most complete and modern lines of brass and iron specialties is shown in the catalogue of the Wm. Powell Company, Cincinnati, Ohio, which has been mailed to its customers. This catalogue presents its line in a complete and practical manner, giving dimensions of every article for which a dimension may be required, and explaining in detail the merits of its well-known specialties. A valuable series of tables and rules is bound in with the catalogue, giving in concise form information that every engineer and shop manager requires in his daily practice. A copy is yours for the asking.

Pneumatic tools are fully described and illustrated in a handsomely cloth-bound catalogue (No. 8) just issued by the Independent Pneumatic Tool Company, First National Bank building, Chicago, Ill., a free copy of which will be sent to all readers mentioning this magazine. This catalogue describes in detail Thor piston air drills, reversible and non-reversible; pneumatic reaming, tapping and flue rolling machinery; pneumatic wood boring machines; pneumatic riveting, chipping, calking and beading hammers, and pneumatic hoists, motors, grinding machines, saws, flue expanders and pneumatic appliances of every description. This company also makes air compressors, and one of its specialties is the installation of complete air plants. Every user of pneumatic tools or machines of any nature should not fail to send for a copy of this catalogue.

"Coaling in a Seaway" is the title of a handsomely printed and illustrated pamphlet of 46 pages issued by the Lidgerwood Manufacturing Company, 96 Liberty street, New York City. The Lidgerwood-Miller marine cableway is the outcome of nine years development through the experience gained by sea trials of the United States Navy, the British Admiralty, the Russian Admiralty and the Royal Italian Navy. The statement is made in this pamphlet that this cableway has never failed to deliver coal in a seaway, and that the efficiency has steadily increased. In the winter of 1899 22 tons per hour was the first record. In the fall of 1906 coal was transported at the rate of 83 tons per hour. The pamphlet is profusely illustrated with half-tone engravings from photographs of actual feats of coaling at sea. Those interested should not fail to send for a copy of this book, which will be sent free to readers mentioning INTERNATIONAL MARINE ENGINEERING.

Sub-marine signals are the subject of a handsomely illustrated pamphlet of 90 pages, published by the Submarine Signal Company, 88 Broad street, Boston, Mass., and 72 Victoria street, London. These signals have been adopted by the United States, Canada, Germany, France, the Netherlands, by the Mersey Docks and Harbor Board, and by a large number of steamship companies. The lighthouse authorities in various countries have adopted sub-marine signals because this system gives constant warning in all conditions of weather, and also enables the navigator to get the direction absolutely. The Submarine Signal Company in this catalogue presents in tabulated form the results obtained by various steamship lines. The report of the British Admiralty states that sub-marine bell increases the range at which the fog signal can be heard until it approximates the range of a light-vessel's light in clear weather, and that its bearings can be determined with accuracy for safe navigation in fog from a distance far beyond the limits of aerial fog signals if the vessel is equipped with receivers. A free copy of this pamphlet will be sent to every person mentioning INTERNATIONAL MARINE ENGINEERING.

The September issue of "Graphite," published by the Joseph Dixon Crucible Company, Jersey City, N. J., contains the concluding article on pressure reducing valves, by W. H. Wakeman, besides the usual number of other articles of interest to engineers. Every engineer who wishes to receive a copy of this monthly publication should write to the publishers and ask to be placed on the free mailing list.

The American Air Compressor Works, 26 Cortlandt street, New York City, has published a new bulletin, No. 18, illustrative and descriptive of its box bed-plate compressors and vacuum pumps. Copies of this bulletin will be mailed gratuitously. The American Air Compressor Works manufactures many other styles, sizes and types not shown, also makes complete installations, including pneumatic tools, etc. Prices and specifications will be furnished upon application.

Those interested in the "paint question" should write to the New Jersey Zinc Company, 71 Broadway, New York City, and ask for the following pamphlets, which will be sent free to those mentioning INTERNATIONAL MARINE ENGINEERING: "The Paint Question," "Paint; How, Why and When," "Paints in Architecture," "Specifications for Architects" and "French Government Decrees."

"How to Clean a Boiler" is the title of a folder distributed by H. W. Johns-Manville Company, 100 William street, New York City. This folder tells about this company's "Magic Boiler Compound," which the company states will not injure the iron, will not evaporate from the boiler, will not affect the packing, lubricants or any of the products of the plant which may come in contact with the steam, nor will it cause the boiler to foam.

The thirteenth annual report of Webb's Academy and Home for Shipbuilders, Fordham Heights, New York City, for the year ending April 1, 1907, has just been issued. This institute was founded to furnish any young man who may upon examination prove himself competent and of good character, a gratuitous education in the profession of ship and marine engine building, both theoretical and practical, together with board, lodging and the necessary implements and material while obtaining such an education.

Metropolitan injectors are described and illustrated in a catalogue just issued by the Hayden & Derby Manufacturing Company, 85 Liberty street, New York City. The catalogue states: "Metropolitan injectors are recognized by experts, engineers and steam users in all parts of the world as the most reliable, durable and economical injectors made. This recognition by those competent to judge has been gained solely by the principle employed, the mechanical design, the material used and the care taken in their manufacture. The fact that Metropolitan injectors are almost exclusively used in the largest electric light and power plants, factories, steamships and all places where a high-grade and efficient injector is desired, demonstrates without question the superiority of these injectors. With the advancement of steam engineering and the perfection of all the details it has been demonstrated that a perfect injector can be profitably used as a boiler feeder. To secure the best results the conditions under which the injector is to be used should be carefully studied and the type of injector selected most suitable to meet the requirements. The adaptation of steam to commercial uses presents such a varied change of conditions of steam pressures, source of water supply and general service that it has been found practical to use the two types of injectors now in common use: the AUTOMATIC, or open overflow, and the DOUBLE-TUBE, or closed overflow, each type possessing its peculiarities and advantages which are especially adapted for the varied conditions. The Hayden & Derby Manufacturing Company, 85 Liberty street, New York, makes METROPOLITAN INJECTORS in two types: The AUTOMATIC INJECTOR, which is automatic and has an open overflow; the INJECTORS, MODELS O, T and G, which are double-tube injectors with closed overflows."

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

71 BROADWAY NEW YORK

Free, Our Practical Pamphlets:

"The Paint Question"
"Paint: How, Why and When"
"Paints in Architecture"
"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

Free Booklets on Graphite.—The Joseph Dixon Crucible Company, Jersey City, N. J., has published a large number of booklets on the subject of graphite, which will be found interesting to any user of this production. Free copies will be sent to any of our readers who will mention this magazine. Among these booklets are "Graphite as a Lubricant," "A Study in Graphite with Tests," by Prof. Goss, and "Air Compressor Lubrication." Those interested in this subject will also be placed upon the free mailing list of "Graphite," which is published monthly by the Joseph Dixon Crucible Company.

"The Principle of the Parmelee Wrench is explained in a folder published by the Parmelee Wrench Company, 1054 West Monroe street, Chicago, Ill., as follows: "Suppose you wanted to loosen an inch tube that was screwed tight into a fitting. Now, if you merely took hold of the tube with your thumb and finger ends, it would take a pretty hard pressure to hold on tightly enough to budge it, and then if the tube were thin you would flatten it. But suppose you enclosed the tube with your hand, gripping it all around, you could turn it easily. The first hold is that of the ordinary pipe wrench or pipe tongs. The second gives some idea of the grip of the Parmelee pipe wrench. It is the only pipe wrench on the market that will positively make or break the tightest steam or ammonia joint without crushing or marring the pipe."

TRADE BRILLIANT MARK

IF YOU USE THE KING OF METAL POLISHES **BRILLIANT** *YOU HAVE THE BEST IN THE WORLD*

It is a great MARINE FAVORITE

Manufactured by F. M. TRAFTON CO., 176 Federal Street, Boston, Mass., U. S. A.

TRADE BRILLIANT MARK

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

TRADE PUBLICATIONS

GREAT BRITAIN

Petrol motors, reversing propellers and complete marine equipment ready to install in hulls from 12 to 25 feet, designed and manufactured by J. Smart & Brown, Erith, Kent, are described in circulars this firm is distributing.

Accurate gages are described and illustrated in a catalogue issued by John Jackson, 232 St. John street, Clerkenwell, London, E. C. "For upwards of thirty years we have been making pressure and other gages of the highest quality, and from the fact that these gages have been in use during that period throughout the United Kingdom, the Colonies, India, South America, etc., etc., we claim that they have proved their superiority to many makes on the market. We also claim that, although there are many good types of gages in existence, the experience of our numerous customers shows that our ordinary and special gages hold the field for good workmanship, accuracy and finish. They are made at our works at Clerkenwell by skilled workmen, and none but the very best materials are used in their construction. Our name on any gage is a guarantee of accuracy, strength and durability."

"The Lancaster" specialties, pistons, piston valves, steam traps, steam dryers and metallic packings are the subject of a very completely illustrated catalogue of 70 pages issued by Lancaster & Tonge, Ltd., Pendleton, Manchester. The introduction to this catalogue states that "Lancaster" piston packing have stood the test of over twenty-one years experience, during which time over 30,000 have been sold. It is stated that they secure a steam-tight piston with a minimum of friction, and that they are very simple in construction and are self-adjusting and reliable even in unskilled hands. Large numbers have been supplied for marine purposes, and they are in use on some of the largest liners, the North German Lloyd having given the manufacturers many orders during the past few years. Lancaster & Tonge, Ltd., will continue to supply new customers with piston rings and springs on approval for three months' free trial.

A patent reversible propeller is illustrated in a folder distributed by Villinger's Patent Reversible Propeller Syndicate, Ltd., 35 New Broad street, London, E. C. One of the main features claimed for this propeller is increased efficiency in operating and reversing the blades; this object being attained by having an inner axial bearing to carry a journal on the root of each blade, so that each root flange is rigidly held and guided between two good bearings, thus allowing the blade to revolve smoothly on its own axis, similar to an engine crank working between two bearings close up to the crank.

Boiler and pipe coverings, oils, etc., are illustrated and described in a catalogue published by Matthew Keenan & Company, Ltd., Tredegar Road, Bow, London, E. The advantages of covering heated surfaces are stated as follows in this catalogue: "Steam, especially when conveyed long distances in bare and exposed pipes, condenses to a marked extent. This condensation is almost entirely prevented by the use of proper insulating material. We are told repeatedly by our customers that the saving of fuel after we have covered their boilers and pipes with this composition has been sufficient in three or four months to pay for the cost of the covering. Not only does the covering materially lessen the coal bill, but it adds to the capacity of a steam plant, prolongs the life of the engine cylinders, and reduces the temperature in boiler and engine rooms, thus enabling the men to do their work in comfort. This economy is a permanent one, as our coverings do not shake down or decompose, nor do they rust or pit the metal, as some continually do. We have carefully examined boilers and pipes which have been covered with the composition for twenty-five years, and no trace of rusting or pitting were found. We can justly claim that our material will outlast any other make of non-conducting composition, while at the same time it does not deteriorate in quality; as an example of this we shall be pleased at any time to show pipes, etc., which were covered by us ten, fifteen, twenty-two and thirty years ago, and notwithstanding the fact that they have been in constant use all the time are now in good condition. Another great advantage is that it is not affected by exposure to weather. Our composition has been applied on flues heated up to 1,000 degrees F. and found efficient."

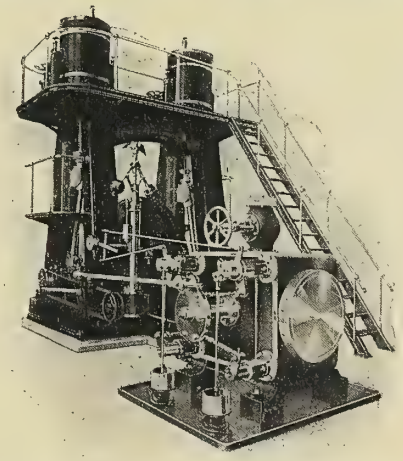
REFRIGERATING AND ICE MAKING MACHINERY

ECONOMICAL

STRONG MATERIALS

BEST WORKMANSHIP

HIGHEST EFFICIENCY



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Probably the most complete catalogue devoted to steamship furnishings and fittings that has ever come to hand is the one issued by Messrs. Brooks & Walker, 25 Minories, Aldgate, London, E. The catalogue is about 8 by 12 inches in size and comprises over 150 pages. Almost everything in the list of brass fittings that could be asked for is illustrated and described in these pages, and in most instances prices are given. The specialties include valves, cocks and gages in great variety, injectors, ships' bells, forges, all kinds of tools in great variety, whistles, marine clocks, deck fittings of many kinds, fire-fighting supplies, lamps for many uses, lubricators of all kinds, pipe fittings in variety. A copy of this catalogue will be sent to any inquirer who mentions INTERNATIONAL MARINE ENGINEERING.

The folding lifeboats and canoes manufactured by the Berthon Boat Company, Ltd., 50 Holborn Viaduct, London, E. C., are very completely illustrated and described in a handsomely printed catalogue, a copy of which will be sent free of charge to any of our readers. These boats have been approved as life-saving appliances suitable for use in accordance with the rules made under the Merchant Shipping Act of Great Britain. The manner in which the boats are constructed is very fully shown in the catalogue, and there is a great deal of information regarding the many uses to which the different types of boat can be put. Any one at all interested in the use of small boats for tenders or dinghies for fishing and shooting purposes, for canoes, as well as for life-saving purposes, etc., should have a copy of this catalogue.

BUSINESS NOTES
AMERICA

THE NATIONAL MOTOR BOAT AND ENGINE SHOW will be held in Chicago, at the Colliseum, Jan. 1 to 8, inclusive, under the auspices of the American Association of Engine and Boat Manufacturers, and sanctioned by the National Association of Boat and Engine Manufacturers and the New England Engine and Boat Association. All correspondence regarding the show should be addressed to Chester I. Campbell, general manager, 5 Park Square, Boston, Mass.

THE STEAMER ASBURY PARK completes another successful season with her 9,000 H. P. battery of Roberts Safety Water Tube Boilers. "The steamer *Asbury Park*, built by the William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa., about four years ago, for the Central Railroad of New Jersey for operation on the Sandy Hook route, had anything but a reputation as a success for the first couple of years. After this term the boilers which were originally installed in this vessel were removed and a 9,000 H. P. battery of Roberts Safety Water Tube Boilers, containing about 500 square feet of collective grate area, was substituted in exactly the same space occupied by the shell boilers. With the latter a pressure of five inches of air was maintained under the grates by Sturtevant blowers, notwithstanding which, however, sufficient steam could not be maintained to run the engines or the boat up to required speed. Besides this, the boilers could not stand the racket and toward the last of the second season were leaking like corn baskets. Roberts Safety Water Tube Boilers have now been in the *Asbury Park* the same length of time as the boilers installed by the Cramps, they are giving perfect satisfaction, furnishing more steam than the engines can use with everything wide open and without using any forced draft whatever. They are not only furnishing plenty of steam, but the steam is more than dry and highly elastic. The *Asbury Park* is making her trips in better than schedule as given on the time table on every trip. The Roberts Boilers have not been cleaned internally since they were put in the boat, but upon removing a tube recently it shone inside like a gun barrel. The tube removed for examination was one directly next to the fire, purposely selected from the hottest point where scale would be most likely to bake onto the surface. On the Fourth of Jul , while running an extra trip, the *Asbury Park* had an opportunity to try conclusions with the renowned *Monmouth* from Robin's Reef to sou'west Spit Buoy. The run was made in forty minutes, the *Asbury Park* winning by over half a mile. The *Monmouth* was using the blowers, while the *Asbury Park* was not only running under natural draft conditions, but with the furnace doors partly open. In as much as no changes were made to the *Asbury Park* except the boilers and some joiner work on the upper decks, it would seem that all the credit for this phenomenal improvement must be given to the Roberts Safety Water Tube Boiler.

CHARLES GRIFFIN & CO., Ltd., Publishers, London, ENGLAND.

STANDARD WORKS FOR MARINE ENGINEERS.

STEEL SHIPS. Their Construction and Maintenance. A Manual for Shipbuilders, Ship Superintendents, Students and Engineers. By THOS. WALTON. Third Edition. With many Plates and Illustrations. 18s. net.

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MARINE ENGINEERING RULES AND TABLES. For the use of Marine Engineers, Designers, Draughtsmen, and others. By A. E. SEATON, M.Inst. C.E., &c. and H. M. ROUNTHWAITE, M.I.Inst.E., M.I.N.A. Ninth Edition. Revised. 8s. 6d.

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PRACTICAL ALGEBRA. By R. C. BUCK. Second Edition. 3s. 6d.

THE LEGAL DUTIES OF SHIPMASTERS. By BENEDICT WILLIAM GINSBURG, M.A., LL.D. Second Edition, Revised and Enlarged. 4s. 6d.

A MEDICAL AND SURGICAL HELP FOR SHIPMASTERS. By WM. JOHNSON SMITH, F.R.C.S. Third Edition, Revised. 6s.

London: CHARLES GRIFFIN & Co., Ltd., Exeter Street, Strand.

Sub-marine Signals in the Coal Trade.—The Fore River Shipbuilding Company is constructing for the New England Coal & Coke Company, of Boston, the *Everett,* the *Melrose* and the *Malden,* three steel steamships to carry coal between Hampton Roads and Boston. These vessels and the terminal facilities which are building to accommodate them are destined to work radical changes in the coal trade of Boston. At the launching of the *Everett,* on July 11, President Richards thus stated the problem and solution: "Interests with which I am connected use at their Everett plant alone 600,000 tons per year. On investigation it seemed to us that, while the price of coal at the mine was reasonably low, the price of transportation of the product from the mine to New England was extremely high. We believed that the system of water transportation particularly was far from being up to date. Coal that is brought by rail from the mine to tide water at shipping point is transported to this section in various types of boats, varying in tonnage from a small schooner to craft carrying 5,000 or 6,000 tons, and each schooner, barge or steamer varying in type of construction. We decided to build three steam colliers, each about 400 feet long, drawing 24 feet of water, and to carry 7,200 tons of coal. This fleet will bring into Boston about 1,500,000 tons of coal per year, which is about one-half of the total amount of soft coal brought in last year from United States ports. We are now adding to the discharging and storage plant so that we hope to unload one of these ships, which will carry 7,000 tons, in not over ten hours." Important as carrying capacity and improved terminals are in reducing cost, the ability of these vessels to navigate in fog is equally advantageous. By means of the sub-marine signal apparatus with which these vessels are to be equipped, they can pick up one point after another, no matter how dense the fog or how rough the sea, and can proceed on their way with safety and despatch. The enormous advantage gained in the saving of time by the use of sub-marine signals reduces the cost of transportation materially, besides adding to the safety of the vessel. Other corporations engaged in the coastwise coal trade besides the New England Coal & Coke Company have been quick to utilize the facilities for safe navigation provided for them by the United States Lighthouse Board and the Canadian Department of Marine and Fisheries. Among them are the following: Dominion Coal Company; Susquehanna Coal Company; Coastwise Transportation Company; Staples Coal Company; Baltimore & Boston Barge Company; Commercial Tow Boat Company; T. J. Scully Towing Company; J. S. Emery & Company; Philadelphia & Reading Railroad Company; Delaware, Lackawanna & Western Railroad; Seaboard Transportation Company; F. B. Cheeseborough; Luckenback Transportation & Wrecking Company; Percy & Small; Nova Scotia Steel & Coal Company.

Gages are the subject of a very completely illustrated catalogue of 54 pages issued by Wells Bros., of Greenfield, Mass. Regarding this company's thread micrometer caliper the catalogue states: "The increased demand for accurate bolts and screws, and the fact that the outside diameter of a screw has very little to do with its fit in the nut or other tapped hole, has led to a demand for an instrument to measure the working size of any bolt or screw. We have met this demand by offering a caliper so designed as to measure on the angle of any screw thread. This caliper is, essentially, a frame carrying two steel points, arranged to bear diametrically opposite each other on the bolt or screw being measured. These points are hardened and ground to fit the angle of the thread, one point being provided with a side movement to allow its being set over a distance equal to one-half of the pitch of the thread, so that the points will enter at right angles to the axis of the screw."

Vessels Classed and Rated by the American Bureau of Shipping, 66 Beaver street, New York, in the "*Record of American and Foreign Shipping,*" American screw *Winyah,* American screw freight boat *Bay Ridge,* American screw *Le Grand S. de Graff,* American screw yacht *Alcedo,* American screw *Governor,* American screw freight boat *Gowanus,* American screw *Gettysburg,* American screw *Captain A. M. Wetheill,* American screw *St. Helens,* American schooner *A. K. Woodward,* American schooner *Benjamin A. VanBrunt,* American schooner *Mertie B. Crowley,* American schooner *George A. Lawry,* American schooner *Forest City,* American tern *Fred A. Small,* British tern *Peerless,* British tern *Emily Anderson,* British tern *Jean,* British tern *Success,* American tern *Wowenock,* British tern *Annie,* British tern *Kenneth C,* British tern *G. M. Cockrane,* American tern *Brookline,* American bark *Nuuanu,* British barkentine *Athena,* American barkentine *Mannie Swan,* American brig *Mahonoy,* American brig *Arundel* and American brig *Draper.*

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The fourteenth annual boat and sportsman's show will be held at Madison Square Garden, New York, Feb. 20 to March 7, inclusive.

Notwithstanding the fire, Sept. 13, in the plant of the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, which destroyed the greatest portion of the rolling mill, the principal machinery was only slightly damaged and the execution of orders was delayed but a few days.

The National Motor Boat and Engine Show will be held in New York at the Grand Central Palace, Dec. 7 to 14, inclusive, under the auspices of the American Association of Engine and Boat Manufacturers and sanctioned by the National Association of Boat and Engine Manufacturers and the New England Engine and Boat Association. All correspondence regarding the show should be addressed to Chester I. Campbell, general manager, 5 Park Square, Boston, Mass.

From the Great Lakes to Puget Sound around Cape Horn. The Steamship *Iroquois* equipped with Roberts Water Tube Boiler makes the run in fine time. The Steamship *Iroquois*, built by the Craig Ship Building Company, Toledo, Ohio, about seven years ago, was equipped at the time with a battery of four Roberts safety water tube boilers, having a combined grate area of 224 square feet, which furnished steam to a triple expansion engine, which drove the boat at a speed of twenty miles per hour. The *Iroquois* was operated on Lake Michigan for a couple of years, was then sold and went to Lake Superior. Last winter she was sold again to parties in Seattle, Wash., and in January started for her new home on Puget Sound. She came from the Great Lakes and stopped over in New York long enough to install a surface condenser, vacuum pump and other salt water auxiliary machinery, then proceeded around Cape Horn to Seattle, making three stops for supplies and completing the run from New York to destination in fifty days. When she arrived at Puget Sound she reported ready for duty, and was immediately put into service by her new owner, who states that as far as the Roberts boilers were concerned she could have turned around immediately and made the trip back to the Great Lakes without even having to wash the boilers out. "We think this speaks volumes in favor of the Roberts safety water tube boiler, as it not only proves its adaptability to long deep sea voyages, but puts the celebrated run of the United States Battleship *Oregon* and the United States Gun Boat *Marietta* decidedly in the background."

Barrett & Lawrence, 662 Bullitt building, Philadelphia, Eastern agents for the Nicholson ship log, have installed a No. 1 log on the Standard Oil Companies Steamship *City of Everett*. This makes the second log installed on the ships of this company.

Vanda Packing, made by the H. W. Johns-Manville Company, 100 William street, New York City, is said to be a novelty in packing manufacture, and to be suitable for every condition in the engine room, so that only one stock of packing is required where Vanda is used. "Vanda Packing is an asbestos fiber sheet packing. It is not a rubber product, and, having asbestos as its foundation, it possesses serviceable and durable qualities not found in any rubber and organic packings. It resists steam pressure of 250 pounds and over—and temperatures of from 800 degrees to 1,000 degees Fahrenheit, and gives uniformly satisfactory and lasting service under all varying temperatures and pressures. It is equally adapted for low pressure steam and hot water, and is the best packing for ammonia pipes in ice and refrigerating plants. It is the only packing that can be depended upon for ammonia joints. Vanda packing is the lightest in weight and most economical packing made."

The Application of Diesel Crude Oil Engine as the motive power of vessels. The following is a translation of a letter written by Mr. Berthold Bing, manager of the Russian Diesel Engine Company, Nurnberg, Gemany, to Mr. Adolphus Busch, president of the American Diesel Engine Company. In the September issue of International Marine Engineering is an article fully describing the Diesel engines and some of the boats in which they have been fitted. "You will be interested to learn that our Russian licensees, the firm of Ludwig, Nobel of St. Petersburg, and the Kolomna Machine Works, have taken an order from the Russian Government for thirty-two Diesel engines of 250 H. P. each. These engines are to be delivered during 1908. They are intended for the equipment of eight gunboats for the Amur River, and each boat will have four engines of 250 H. P. each, making 1,000 H. P. The reversing gear is according to the electric system of Del Proposto. The electric equipment will be furnished by the Volta Company of Reval. The contract for the engines alone amounts to about four million marks (.i e. one million dollars.)"

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The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality, It is guaranteed to exceed United States Government specifications.

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"Perolin" is the ideal fireproof floor cleaning compound, according to the H. W. Johns-Manville Company, 100 William street, New York City. Instead of laying the dust this compound is said to absorb it and to draw it from the cracks and crevices in the floor. It is, moreover, a powerful disinfectant.

"Free to any engineer, a Crosby, Tabor, American Thompson or Lippincott indicator, also 500 other things, including every article, tool or device any engineer may want." Those interested are referred to the advertisement of the France Packing Company, Philadelphia, Pa., for particulars regarding the offer.

The National Motor Boat and Engine Show will be held at Boston, Jan. 25 to Feb. 1, inclusive, in the Mechanics' building, under the auspices of the New England Engine and Boat Association and sanctioned by the National Association of Boat and Engine Manufacturers and the American Association of Engine and Boat Manufacturers.

Foundry Output Curtailed by Hot Weather. In times like the present, when most foundries are running to full capacity, the managers naturally dread extreme heat because, if it is not impossible for the men to work, it is, at least, distasteful to them and much time is lost. When it is considered that this condition in a foundry can easily be overcome, and at no great cost, it is strange that more foundries do not adopt the most modern system of heating and ventilating which makes it possible to cool and ventilate in the summer time and enables the foundry to run continuously. The American Blower Company, Detroit, Mich., has paid especial attention to this branch of business, and has done some excellent work. The following is a letter which the company received without solicitation, and which will be of general interest among foundry managers: As you are aware, we installed one of your heating plants in our establishment. In connection with same desire to say that it has not only given us excellent satisfaction for heating purposes, but has proven equally as satisfactory for reducing the humidity in our workshop. In the foundry, especially during cast time, the heat is almost unbearable in the hot summer days; in fact, the writer has never had any experience during all his foundry practice prior to the present where there was not more or less time lost during the summer months on account of the overbearing heat in the moulding room. It occured to me that the coils filled with cold water, and a fan applied, ought to work equally well for cooling as it does for heating when coils are filled with steam. We accordingly made the experiment with the result that we have not lost a single day in our moulding room, and have always had the shop at a nice working temperature. It gives us pleasure to make this statement. I know you will be pleased to learn the results. Yours truly, The Bellevue Pipe and Foundry Company."

BUSINESS NOTES

GREAT BRITAIN

Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne, have been awarded the Grand Prix for their exhibition of models at the Bordeaux International Exhibition.

Regarding Stationary Hydraulic Riveters, plate-closing and double power, marine boiler type, Fielding & Platt, Ltd., Gloucester, state: "For the very thick plates and high pressure now universally adopted in marine practice, this class of machine is specially suitable. The system of pressing the plates tightly together whilst closing the rivet was first introduced by us to meet the requirements of the rapidly increasing pressures which were demanded in connection with triple and quadruple expansion marine engines. These machines can also be used without plate closing, as double, or in some cases, treble power machines, and can thus deal with a great variety of work beside heavy boiler shells. We make these machines if required with both the main standard and hub of steel, cast in one piece up to a certain weight, and beyond this, bolted together like the illustration. Water saving gear, ensuring an economy of about 60 percent can be added. We have supplied this type of machine to all the leading machine engineering works in this country and abroad."

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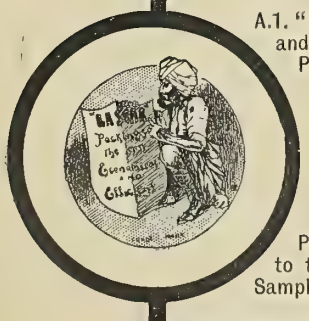

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The Beldam Packing & Rubber Company, 93 Gracechurch street, London, E. C., were awarded the gold medal at the Milan International Exhibition, in 1906, for their Patent Pilot Packing.

The White-Forster water-tube boilers and feed regulators, manufactured by J. Samuel White, Ltd., East Cowes, Isle of Wight, are stated by the manufacturer to be of great simplicity of construction, easily repaired and of maximum efficiency. All tubes are of the same curvature, reducing spare gear to a minimum. The tubes may be easily cleaned inside and out, and may be removed and replaced without disturbing any other part of the boiler pipes or fittings.

The patent hydraulic boiler shell plate bender brought out by Fielding & Platt, Ltd., Gloucester, is said to be one of the best machines on the market. The advantages claimed for this machine are: 1. That the plate is bent to a true curve to the end. 2. That narrow curved plates or joint strips can be bent easily and accurately. 3. That it is impossible to overfeed and break the machine. 4. Plates can be bent very much quicker than by rolls. 5. It requires very much less manual labor. 6. It occupies less floor space—A machine capable of bending plates 1⅝ inches thick and 13 feet wide only taking up a space of 15 feet by 5 feet 6 inches. 7. It can be placed in any position irrespective of shafting, and requires no separate steam engine or motor. 8. It is less in first cost and also in upkeep than bending rolls of equivalent capacity. 9. The cost of foundation is nominal, and the total cost of the installation very low. We would specially draw your attention to the fact that our machines are all fitted with patent automatic feed gear for feeding the plates through the machine. By another recently patented improvement an automatic stop is provided, which can be previously set to suit any curve or any thickness of plate.

Messrs. James Walker & Co., "the packing experts," "Lion" works, Garford street, West India docks, London, E, are exhibiting a unique selection of their goods, which are of a varied and high-class character. The collection of this well-known firm includes specimens of the new Golden "Walkerite" Jointing for steam, water, acid, ammonia, petroleum and every descripion of joint. Their new patent graphite-grease bricks for heavy bearings; "Kerko" ammonia packing, and "Wallico" cone gage-glass rings, etc., all of which will be found of great practical value to every engineer. Walker's celebrated cold prize medal "Lion" packings for all pressures of steam and water, are said to be regarded by users as of superior excellence and special merit. Attention is particularly directed to a new feature which has been introduced in all these packings as a means of identification, viz: a "thin red line," fully protected by copyright, which runs right through them, and brass trade-mark labels which are attached, so that buyers can at once see whether they are getting the genuine mak of Walker's "Lion" packings. "Wallico" valves for circulating air and diaphragm-pumps, mechanical rubber goods of all kinds, and packing of several types for steam hammers, which are included in the many successful manufactures of James Walker & Company, are also shown by them at this exhibition.

Trial trip of salvage steamer *Recovery*.—To cope with their increased ship repairing business, Messrs. Furness, Withy & Co., Ltd., West Hartlepool, have purchased and equipped a steamer, 127 feet in length, classed A1, at Lloyds, with freeboard, having twin screws and especially designed and fitted for salvage, wrecking and towing purposes, and she ought to be a very valuable addition to that company's numerous fleet. She proceeded on a satisfactory trial trip in Hartlepool Bay on Thursday, August 22. The vessel has been specially stengthened for the heaviest class of work, and has three steam winches, powerful mast and derricks for lifting purposes and is fitted with a most complete set of diving plant with special diving boats—this diving plant being fitted with electric light and telephone arrangements. The vessel has a powerful electric light installation, with search light and a number of portable electric tools. The fore end of the ship has been specially stiffened, and massive brackets and sheaves for lifting the heaviest weights are fitted. The equipment also comprises four powerful centrifugal pumps with boilers and gear complete, together with a large quantity of other necessary gear suitable for these special operations, and she supplies probably one of the most complete and efficient salvage plants afloat. On a continuous steaming trial the vessel attained a mean speed of 11½ knots. After the trial trip the boat immediately proceeded on active work in salving and removing the wreck of S. S. *Clavering* and S. S. *Carlo* at the mouth of the Tees, also the S. S. *Enterprise* near Whitby.

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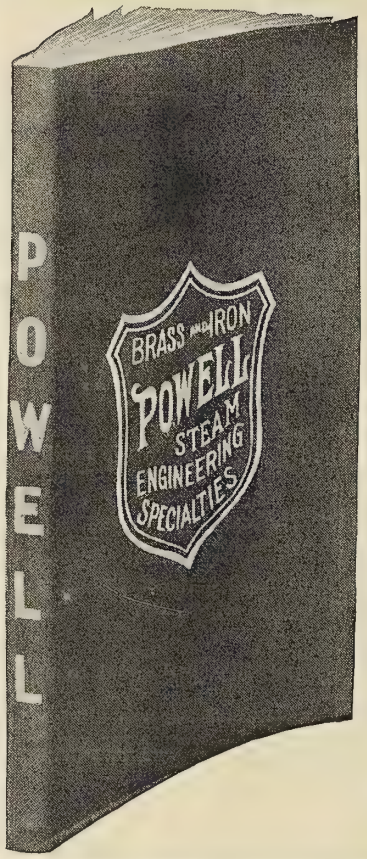

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MARINE ENGINEERS AND STUDENTS
WITH
Aids for Applicants for Marine Engineers' Licenses
By PROF. W. F. DURAND

SECOND EDITION, PRICE $5.00 (21/-)

THIS BOOK is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

PART I.—Covers the practical side of the subject.

PART II.—Covers the general subject of calculations for marine engineers, and furnishes assistance in mathematics to those who may require such aid.

The book is illustrated with nearly **four hundred diagrams and cuts** made specially for the purpose, and showing constructively the most approved practice in the different branches of the subject. The text is in such plain, simple English that any man with an ordinary education can easily understand it.

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MESSRS NAPIER & MILLER are adding marine engineering to their works at Old Kilpatrick, near Glasgow.

MESSRS S. T. TAYLOR & SONS' "Tynos" non-conducting material was applied to boilers, pipes, etc., of *Annette Furness*, which recently has undergone her trial trip.

THE DEXINE PATENT PACKING AND RUBBER CO., Ltd., have secured the contract for one year's supply of Dexine sheeting, patent metallic deep-well pump buckets, gage-glass rings and tube, to the Metropolitan Asylums Board.

100 H. P. AILSA CRAIG MOTOR FOR CHINA. The largest motor yet shipped to China has just left the works of the Ailsa Craig Motor Company, at Chiswick. It is destined for a boat built at Hong-Kong, and should prove an excellent advertisement for this go-ahead firm, whose engines are to be found in operation all over the world. This motor is of the diagonal type with twelve cylinders, and is very compact and light in weight, scaling 1,000 pounds only. The design embodies the well known Ailsa Craig off-set cylinder principle. The company has sent out the whole of the machinery equipment, including reversing gear, shafting, propeller, tanks, etc., together with all fittings for installation in the hull. The set is mounted on steel girders with the starting gearing forward. This is so arranged that the motor is easily started by one man. Magneto as well as coil and accumulator ignition is fitted. Two chain driven six cylinder magnetos are used, and the specially designed high tension distributor is mounted aft with an ingenious combination switch, which enables either system to be put into operation by moving a single lever. Two water pumps are provided, with a change-over device to enable one alone to effect the cooling of the whole engine in case of temporary stoppage or break-down of either. The exhaust system is noteworthy, for all the cylinders exhaust into a long iron tube six inches in diameter, placed between the two rows of cylinders, and from this tube the gases pass into two-funnels containing silencers. Along the center of the iron tube runs a perforated pipe spraying fine jets of water, which are instantly converted into steam, thus cooling and silencing the exhaust very effectively. Lubrication is partly by splash and partly by air pressure feed. The controls of the whole machinery and boat are carried to a boad placed aft of the engine, whereon are mounted also pressure gages for the water circulation and voltmeter switch, etc. One refinement is worthy of special notice—we refer to the engraved indicating plates showing the use and position of the various control levers, etc., a small matter, perhaps, but one that facilitates the working of an engine to a marked degree.

CONCERNING THE *Lusitania* and her cables and shackles: With regard to the permanent moorings this is a matter of the utmost consequence, as the *Lustiania* will, except on rare occasions, always lie in the river instead of going into dock between her incoming and outgoing. The position of her moorings will be in the Sloyne opposite the Great Tranmere Bay extensions. Here there is a well-suited depth of water. The great liner will fasten up to an enormous buoy, which will be illuminated with gas. The gear holding the buoy is larger in dimensions than anything else in use. The onerous task of laying them has been entrusted to Messrs. John Gibney, Sons, & Co., of 44 Chapel street, Liverpool, the well-known firm of submarine mining divers and mooring experts. The buoy itself will be held by four enormous anchors, two of 12½ tons and two of 10½ tons, these being attached to a 16-fathom up and down pendant by four legs. The total weight of the gear, including shackles, will be 217 tons, 13 cwts. and 23 pounds. The following is a detailed account of the weights of the various parts of the gear with shackles: 120 fathoms 3½ by 3¾ inches square link chain and 7 shackles, 40 tons 12 cwts. 21 pounds. 195 fathoms 3½ by 3¾ inches stud chain and 7 shackles, 62 tons 4 cwts. 3 quarters 7 pounds. 120 fathoms 3½ by 3¾ inches square link and 7 shackles, 10 tons 17 cwts. 21 pounds, 16 fathoms 4¼ inches stud chain with one three-way plate connection complete and 4 shackles, 9 tons 5 cwts. 7 pounds. Four 2 fathoms' lengths, 4¼ inches stud chain, with four shackles, 4 tons 18 cwts. 2 quarters. Two three-way plates, with three links attached, one for 4½ inches, one for 3½ inches, one for 3 1-16 inches, 1 ton 10 cwts. 3 quarters. Two 4¾ inch iron tackles for top of mooring buoy, 11 cwts. 2 quarters 14 pounds. One new joining shackle for 3½ inch cable, 3 cwts. 2 quarters 21 pounds. Two 12½ ton anchors, with 3½ inch link attached to each anchor, 25 tons 2 cwts. 2 quarters 9 pounds. Two 10½ ton anchors, 21 tons. Total weight: 217 tons 13 cwts. 3 pounds. The shackling of the gear is being carried out by Messrs. Gibney & Sons, under the supervision of Captain Dodd, of the Cunard Company, and Captain Bellam, on behalf of the Mersey Docks and Harbor Board, supervised the choice of the mooring ground.

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TRADE PUBLICATIONS.
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Every user of steam steering gears, tiller steering gears, electric steering gears, telemotors, hoisting engines, cranes, evaporators, distillers, condensers, etc., should write Williamson Bros. Company, Aramingo avenue and Cumberland street, Philadelphia, Pa., mentioning this magazine, and ask for a copy of the company's completely illustrated catalogue of 116 pages. The foreword of this catalogue states: "The march of improvement necessitates a new issue of our catalogue which we take great pleasure in presenting for the consideration and guidance of all interested in hoisting and steering machinery. New ideas of merit have been freely adopted. Extended descriptions have not been attempted and the most commonly used, the standard types of our engines are the only ones illustrated. If none of these answer your particular requirements, we will gladly build special engines to meet the conditions. We have not deemed it necessary to tax your patience by dwelling on the unvarying excellence of our products. The fact that Williamson engines have been giving complete satisfaction to so many users for so many years seems to answer every question on that point. Our hoisting and steering engines are well known all over the world. We can refer prospective customers to many of the largest concerns in the country, some of which have as high as fifty of our engines in use. In fact, for some time, existing facilities were so overtaxed that we recently erected several large new buildings, which substantial additions to our plant have put us in shape to make prompt deliveries. These buildings are equipped with the most effective tools money can buy, including several special machines designed by us for special purposes, and hence not found in any other shops. We can, therefore, guarantee purchasers of our goods the very latest and best hoisting and steering machinery obtainable. Inquiries regarding hoisting engines should be accompanied by a description of the kind of work to be done, amount of windage on drum and weight to be raised. Please state also whether wire or ordinary rope is to be used. Steering engines have been a specialty with us for the last twenty years. The best proof that they have withstood all tests is the fact that steamship builders and owners who have used them continue to re-order year after year. Such cases are numerous."

Slip drum electric winches for hauling in car floats are the subject of Bulletin No. 21 issued by the Lidgerwood Manufacturing Company, 96 Liberty street, New York City. "Hauling in the heavy floats of car ferries has heretofore been done exclusively by hand. Geared winches, much like those used for bringing passenger ferryboats up to the ferry bridges and mooring them fast were used. The great size and weight of car floats makes this a work of labor and difficulty. It requires a man at each of the two winches and often a third man to direct their work. Even with the double geared winches in use the power required is often so great that the men can make but little headway. When high winds or other causes swing the floats out of line the men at the winches are totally unable to bring the floats fairly up to the aprons so as to bring the rails on the floats and aprons into line and allow the toggles to be thrust home and the extra steel mooring lines made fast. After the mooring has been accomplished and all is snug the hand winches leave one very important contingency unprovided for. This is the possibility of the mooring ropes being parted or the mooring apparatus torn away by the tremendous thrust of a train of cars being run upon the float and being brought suddenly to a standstill with the brakes, or, as often happens, being brought up instantly by striking the buffer at the end of the tracks on the float. In such cases the whole impetus and weight of the moving train and locomotive is transferred to the float. Often under these circumstances the steel mooring ropes are parted or the nut and screw apparatus by which they are attached to the bridge apron is broken or torn from its fastenings. In such cases the entire strain is transferred to the hauling-in hawsers and winches. With the winches in general use no provision is made to safely meet such contingencies. When the float has been brought to its moorings the winches are locked fast with a ratchet and pawl. If a tug or a tow drifts against the side of the float at its outboard end; a train fetches up standing on the float or any other accident happens to tear the float away from its moorings, the whole strain comes on the hauling-in hawsers and the winches. These give away and then there is nothing to prevent a gap being opened between the float and apron into which car trucks or even whole cars may be precipitated. With the new Lidgerwood slipping-drum hauling-in winches all these sources of trouble are fully met. Man power is done away with. Electric motors do the work and the whole operation of hauling in is placed under the direct control of one man."

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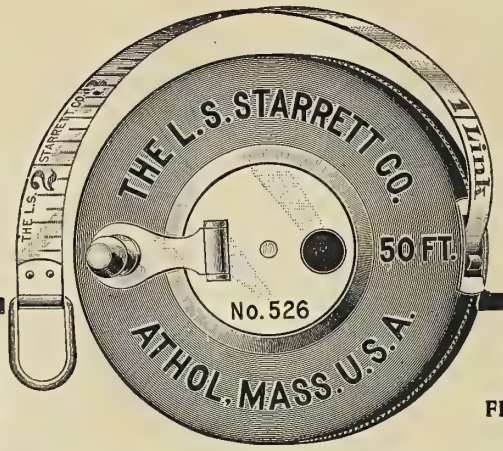
Photo by D. W. Noakes, Esq., Engineer, Greenwich.

DIVER STEPPING ON LADDER TO DESCEND.

Many articles of interest are published every month in *Graphite*, issued by the Joseph Dixon Crucible Company, Jersey City, N. J. All of our readers who will mention INTERNATIONAL MARINE ENGINEERING will be put on the free mailing list of this publication. Among the articles in a recent issue of *Graphite* are: "Pressure-Reducing Valves," "Proper Lubrication of Wire Rope," "An Explosion of a Compressor Cylinder," "Crucible Tongs" and "Power Transmission by Manila Fiber Rope."

Morris metallic packing is the subject of catalogue 110, issued by the H. W. Johns-Manville Company, 100 William street, New York City, a free copy of which will be sent to all readers mentioning INTERNATIONAL MARINE ENGINEERING. This packing is said to be superior for Corliss valve stems and all piston rods, steam turbines, hydraulic, air, gas, ammonia and vacuum. The H. W. Johns-Manville Company makes the following statement introducing this packing: "The Morris metallic packing, as constructed for reciprocating rods under all services, has many points of superiority over the present types in use, and its success has been phenomenal. From these primary types have been developed packings for special conditions, such as the packing of steam turbines, and as this type of motive power is being more widely used, and the Morris turbine packing is the only satisfactory packing in the field, it appeals strongly to the high-class lighting and power plants. We are also prepared to supply Morris metallic packings for air, hydraulic, gas and ammonia service. We have a corps of efficient and practical salesmen to present the merits of the Morris metallic packing to prospective customers, and it will pay those to whom our line of asbestos packings has proved its exceptional merit, to use the Morris metallic packings for conditions where such type is required. Many years experience in the manufacture of metallic packings has demonstrated to engineers the superiority of a soft, gray, cast iron over any other metal for packing steel or iron rods—the two hard surfaces quickly developing on the surface of both rod and and packing that fine, blue, glazed skin which defies both time and use to wear through. Cast iron also possesses the decided advantage of a very high melting point, which renders it impervious to the great heat of the high steam pressure now used."



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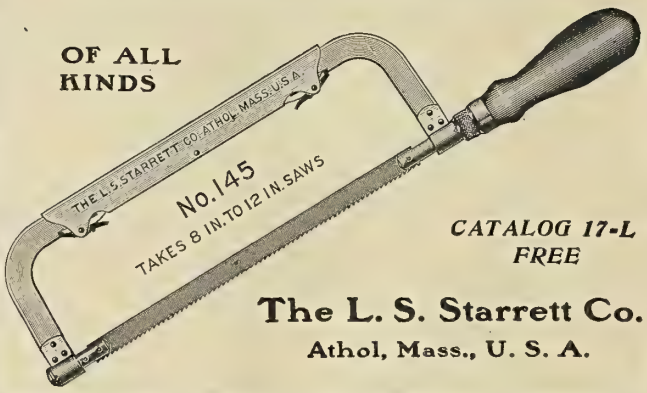

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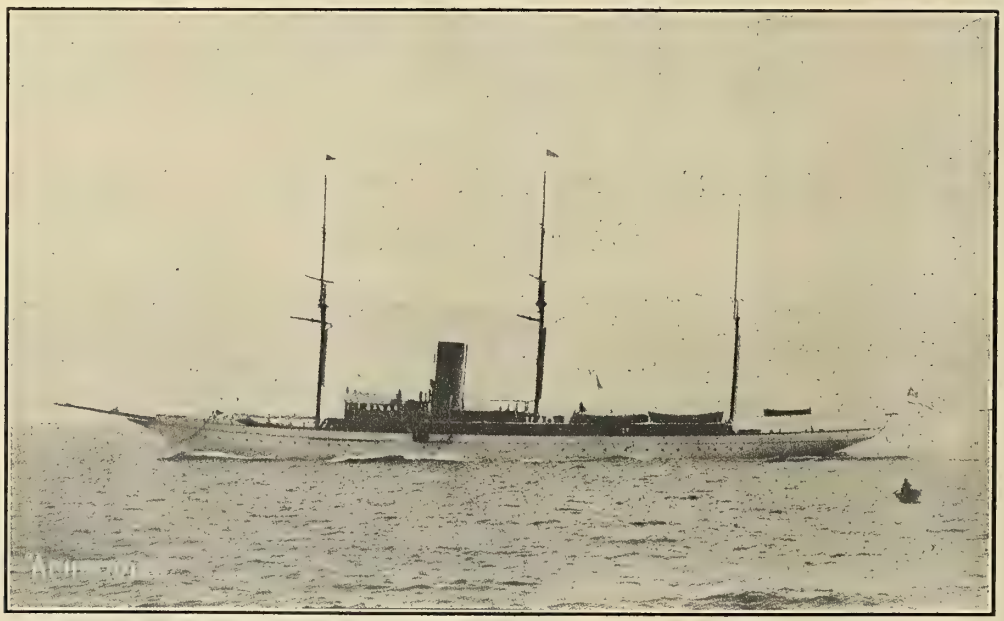

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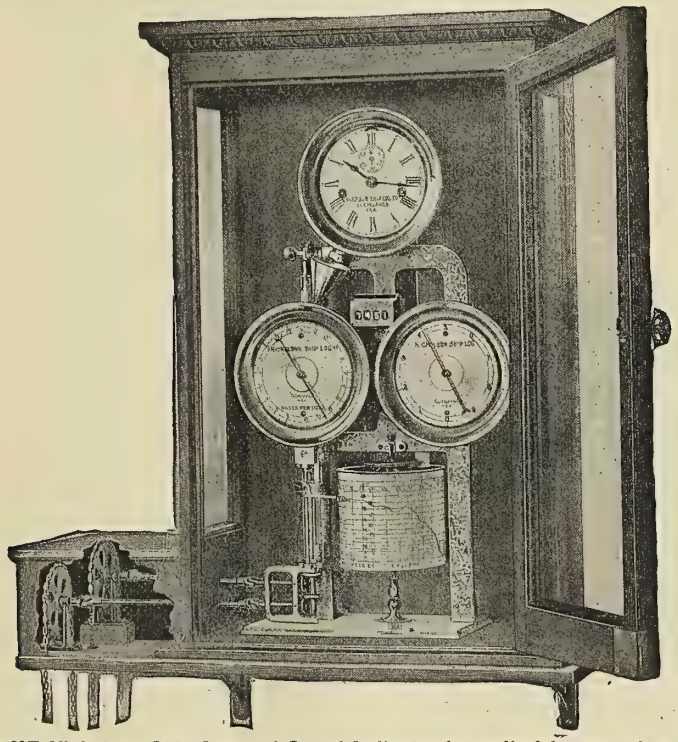
The history and development of the alloy practice in the United States as applied to railway bearings, by G. H. Clamer, a paper read before the tenth annual meeting of the American Society for Testing Materials, held in Atlantic City last June, has been republished in pamphlet form and is being distributed by the Ajax Metal Company, Philadelphia, Pa. This pamphlet will be found of great interest to users of alloys, and a free copy will be sent to all readers who will mention INTERNATIONAL MARINE ENGINEERING.



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A free copy of the catalogue and price list of valves, fire hydrants, etc., manufactured by the Chapman Valve Manufacturing Company, Indian Orchard, Mass., will be sent to any of our readers who will mention this magazine. This is a very complete cloth-bound volume of 400 pages and contains descriptions, price lists and dimension sheets of the regular lines of Chapman valves, hydrants and their accessories. Among this company's valves, used in marine work both in the navy and mercantile marine, are bronze top gate valves for steam and water, bronze screw top gate hose valves for use on underwriter pumps in marine work, and heavy bronze top gate valves for steam and water.

Grinding wheels and machinery are fully described and illustrated in a handsome catalogue of 146 pages just issued by Norton Company, Worcester, Mass., a free copy of which will be sent to every reader mentioning this magazine. This company's product consists of Norton grinding wheels, grinding machinery, alundum, India oil stones, bricks and sticks for rubbing and sharpening, scythe sets, knife sharpeners, bath machine indicators, etc. Suggestions and full instructions for mounting Norton wheels, rules for calculating speeds and diameters of pulleys, explanation of grades of wheels and numbers of sizes of grain, the selection of grades for different work, and many other tables of instruction are given in this catalogue, which also contains a full price list of the company's various products. The Norton Company manufactures wheels expressly for use on Brown & Sharpe grinding machinery, on the grinding machinery of the Landis Tool Company, the Cincinnati Tool & Cutter Company, and other well known makers of grinding machinery. It will cost but 1 cent for a postal card to get one of these catalogues, and a copy should be in the hands of every user of grinding machinery and wheels.

Submarine Signal Bulletin No. 25, published by the Submarine Signal Company, 88 Broad street, Boston, Mass., reads in part as follows: "The attention of importers and exporters is called to the fact that vessels equipped to receive submarine signals frequently save one or more days in making port. This means a day or more saving of interest on the bankers' letters of credit, from 75 to 90 percent of such business being done on this class of credits. A list of submarine signal stations maintained by the various governments together with a list of vessels equipped to receive submarine signals, has been prepared for the use of underwriters who are writing risks on vessels and cargoes. These lists, together with the additions, will be sent free to marine underwriters on application. The North German Lloyd has arranged to equip with apparatus to receive submarine signals the following vessels: *Breslau, Chemnitz, Cassell, Köln, Frankfurt, Hannover, Brandenburg, Gneisenau.* The equipment of these vessels will give the protection of submarine signals to every North German Lloyd steamship sailing to United States ports. The Argo line, sailing between Bremen and London and Hull, is equipping the steamships *Adler, Schwan* and *Schwalbe.* The *Sperber* of this line is already equipped. The Panama Railroad Steamship Line has arranged to equip with submarine signal receiving apparatus its entire fleet of five steamships sailing between New York and Colon. This line is owned and operated by the Panama Railroad Company, which is the property of the United States Government. The ships are the *Panama, Alliança, Finance, Colon* and *Advance.* The Zeeland Line, running between Queensboro and Flushing, have equipped their steamers *Konigen, Wilhelmina* and *Engeland* to receive submarine signals. These vessels fly the Dutch flag. South Pass, La., light-vessel No. 43, at the entrance of the Mississippi River, has been equipped to send submarine signals when she returns to her station about Oct. 15. Captains report that a bell on this vessel is very much needed, owing to the frequency of fog caused by the mingling of the waters of gulf and river. On an average the bell will ring one hour a day throughout the year. Heald Bank light-vessel No. 81, at the entrance to Galveston, Tex., has been equipped to send submarine signals while on her station. This bell will be of material assistance to the already large and rapidly increasing number of steamships making this port. The North German Lloyd steamships making Galveston are being equipped to receive submarine signals. For the purpose of allowing vessels to test the submarine signal apparatus, the Sandy Hook light-vessel is ringing its submarine bell continuously day and night during September. The British Government *Notice to Mariners* states that the Netherlands light-vessels set the international code signal W. D. J. while the bells are ringing in order to allow vessels to test their submarine signal apparatus. Vessels equipped or in process of equipment to receive submarine signals fly the following flags, the order being according to the number of vessels under rental: United States, German, English, Spanish, French and Dutch."

A general catalogue of machinists' tools has been issued by the Billings & Spencer Company, Hartford, Conn., manufacturers of and dealers in machinists' tools and drop forgings of every description in copper, bronze, iron and steel. This catalogue should be in the hands of every user of machinists' tools and drop forgings. The company was organized in 1869, and is said to be the oldest and largest establishment of its kind in business.

"On the Art of Cutting Metals," by Frederick W. Taylor, M. E. Sc. D., which was the presidential address presented at the last annual meeting of the American Society of Mechanical Engineers, has been reprinted and bound in cloth by the society, price, $3.00. This or any other publication of the society may be had by addressing the secretary, 29 West Thirty-ninth street, New York. It is not necessary to send orders through members. None of the publications of the American Society of Mechanical Engineers are copyrighted.

"Inter-pole variable speed motors for machine-tool drive" is the subject of an illustrated booklet issued by the Electro-Dynamic Company, Hanover Bank building, New York. The statement is made that "the inter-pole motor has no superior for machine-tool drive. It is made in numerous sizes from ¼ horsepower to 150 horsepower. Speed variation is attained on any single, standard voltage by field control alone. We regularly list variations as high as 6 to 1. The special exclusive features of this motor are: its small size and light weight, its compactness, due partly to ball bearings, its superior regulation, and entire absence of sparking, even under heavy overloads."

"Agrippa" Fittings Wrench Drop-Forged.—"More work, more efficiency, more comfort. The Agrippa fittings wrench gets into the tight, narrow places and bites on irregular forms when the broader chain wrench would fail. No more trouble handling short nipple and flange connections or jobs with a variety of outlets—a single, narrow, powerful jaw for both pipe and fittings. Thoroughly tried for several years before marketing. Twenty-five years of "good building" in the Vulcan (original) chain pipe wrench is the maker's guarantee of sound principles in the Williams' Agrippa." Made by J. H. Williams & Company, Brooklyn, N. Y.

Corliss engines are the subject of illustrated catalogue E issued by the Vilter Manufacturing Company, Milwaukee, Wis. It has been the company's aim to meet the growing demand from power users to furnish an engine that possesses the essential qualities of efficiency, durability and simplicity. The company has built and equipped an up-to-date factory, enabling it to make the proper kind of iron for the requisite parts of the engines. A completely illustrated description is given of this company's engines and their various parts. At the back of the catalogue are numerous tables, showing capacities of standard and heavy duty Corliss engines and their dimensions, the circumferences and areas of circles, the weight and specific gravity of various materials, and a table of "general information for engineers."

The "Thor" hose coupler for compressed air or water is made by the Independent Pneumatic Tool Company, of Chicago and New York, and the following advantages are claimed for it: "This coupler is absolutely tight; both parts are alike—no male or female parts; gaskets cannot blow or fall out; made of tough bronze—cannot corrode; made for 1-inch, ¾-inch, ½-inch, ⅜-inch hose or pipe with the same sized head, so that small hose can be coupled to large without the use of reducers; coupled by a third turn of the hose; made in hose to pipe or pipe to hose with screwed end connections; leaky joints reduce compressor capacity; both ends of hose have duplicate couplings; no time wasted looking for washers; not affected by weather or moisture; cannot be blocked by dirt between working parts; this is where time is saved; can be connected in one-tenth of the time required for ordinary couplers; no stripped threads or delays."

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

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We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

Keystone hair insulation is the subject of a folder issued by the H. W. Johns-Manville Company, 100 William street, New York.

Steam Turbines.—The General Electric Company, Schenectady, N. Y., has issued pamphlet No. 4,531 describing the Curtis steam turbine generator. The line and half-tone illustrations show the complete machine and details of the buckets and other parts. Reports of tests of different sizes of Curtis turbines showing vacuum, superheat, pressure, etc., under different loads are included. One test shows the comparative efficiency of a turbine and a reciprocating engine of equal rating, operating under the same conditions.

"Twenty-Five Years Young" is the title of a handsomely printed and illustrated folder published by the Ball Engine Company, Erie, Pa. In addition to the descriptions of the various automatic and Corliss engines this company is building, is a list of six "established facts," among which is the following: "We have an immense line of patents and drawings, enabling us to build engines exactly suited to the various electric generators now on the market. If you want an engine for a 125-kw. generator it is not necessary for us to offer you an engine that is only suited for a 100-kw. nor an engine that is big enough for a 200-kw. generator and charge you accordingly. We have patterns for all sizes and conditions."

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"Temporary Net Prices" of Ingersoll-Rand pneumatic tools are given in Bulletin No. 546, published by the Ingersoll-Rand Company, 11 Broadway, New York City. These prices are said to govern for a limited time only and are subject to withdrawal without notice.

"The Penberthy Engineer and Fireman" is a monthly magazine published by the Penberthy Injector Company, Detroit, Mich. The subscription price is 25 cents per year, and a free sample copy will be sent to any reader mentioning this magazine. Engineers and firemen will find many interesting articles in this publication.

The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., maker of electric controlling devices, has issued a booklet describing its line of electric crane controllers. In addition to full descriptions and illustrations of five types of crane and hoist controllers, the booklet contains connection and dimension diagrams, repair part charts, prices, net weight and shipping weight of apparatus, etc. An improved form of contactor for handling heavy currents is also described.

"Economical Steam Production" is the title of a 30-page catalogue issued by the Vulcan Soot Cleaner Company, Du Bois, Pa. The following economies are claimed to result from the use of this company's soot cleaners: "Saving of fuel; saving of labor; saving of tubes; saving of hose and appurtenances; elimination of wear and tear; elimination of dirt; elimination of drudgery; prevention of cold air periodically entering the boilers; prevention of loss entailed by idle boilers."

Ship and engine builders desiring an efficient machine for grinding piston rods and other engine parts, should write to Department M of the Norton Grinding Company, Worcester, Mass., asking for a catalogue giving full particulars. This company's 18-inch by 168-inch overhead drive machines are used in the best shipyards throughout the world and are especially designed for marine work.

Special attention is called by the Bourne-Fuller Company, Cleveland, Ohio, in its August stock list to pages 30 and 31, on which are listed open-hearth steel rivets. The structural rivets shown on page 30 have cone heads; those on page 31 have round heads. The company is prepared, however, to make to order promptly any style of head. All of our readers mentioning this magazine will receive this company's monthly stock list free of charge.

"The Crosby, a Little Book with a Big Purpose," is published monthly by the Crosby Steam Gage & Valve Company, 16 Dey street, New York City, and is devoted to the interests of Crosby gages, valves, indicators, pressure recorders, counters, chime whistles, etc.

The highest achievement in air tool construction is represented in the "Thor," according to a circular just issued by the Independent Pneumatic Tool Company, of Chicago and New York. The statement is made that these tools give better results with far less cost for maintenance than any other air tools on the market.

"Electric Motor Equipment" is the title of a 74-page catalogue just issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York City. This catalogue is printed in the same handsome manner as all other catalogues issued by this company, and like the other catalogues is profusely illustrated by half-tone engravings.

Among interesting folders recently published by the H. W. Johns-Manville Company, 100 William street, New York City, a free copy of all of which will be sent to any of our readers upon application, are the following: "How to Clean a Boiler," "Victor Combination Meters," "Electrodes, a Preventive of Electrolysis," and "Keystone Plumbing Pipe Covering."

Electric pyrometers are described in illustrated catalogue No. 17, issued by William H. Bristol, 45 Vesey street, New York City. These pyrometers are designed for indicating, recording and controlling high temperatures and are adapted to every-day practical service in industrial works, manufacturing plants and laboratories.

The "Kewanee" flange union is the subject of an illustrated folder distributed by the Western Tube Company, Kewanee, Ill. This union is made entirely of malleable iron excepting the brass seat, which is made practically integral with the malleable part by what the company states is the only method which experience has shown to be enduring.

The new catalogue of forged steel pipe flanges just issued by the American Spiral Pipe Works, Chicago, Ill., is stated to be the most complete work of its kind ever published, and that it shows clearly the latest and best flange connections for pipe as adapted by the leading engineers and manufacturers. It contains complete price lists, dimension tables and full-size cross-section cuts of flanges used for various standards.

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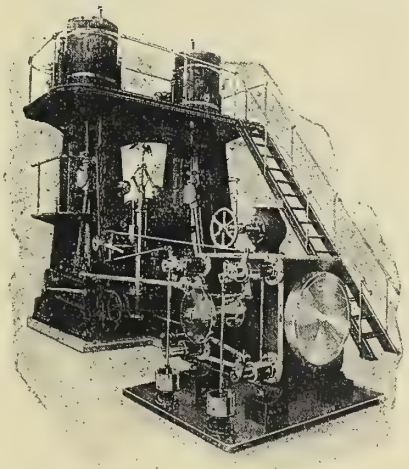

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Steam pumps and hydraulic machinery are described in a handsomely illustrated catalogue issued by the Canton-Hughes Pump Company, Canton, Ohio.

A complete stock of "Climax" boiler and structural rivets on hand for immediate shipment is listed in the latest monthly stock list issued by the Bourne-Fuller Company, Cleveland, Ohio, dealers in iron, steel, pig iron and coke.

Every engineer should write Crane Company, Chicago, Ill., mentioning this magazine, and ask to be put on the free mailing list of "The Valve World." This publication is 15 by 10½ and profusely illustrated.

A 14-page stock list issued by the Scully Steel & Iron Company, Chicago, Ill., will be sent free to any of our readers upon application, and should be in the hands of all users of boiler, tank and sheet steel, structural iron and steel, machine tools of every description, etc.

An illustrated catalogue and price list of valves, hydrants, etc., manufactured by the Kennedy Valve Manufacturing Company, 57 Beekman street, New York City, has just been issued. It is stated that since the issue of the last catalogue the company has extended many of its lines and added others.

The Sargent Steam Meter Company, First National Bank building, Chicago, Ill., is distributing circulars calling attention to the company's "instruments of precision," which it states are used by power plants and consulting engineers throughout the world.

The result of tests of the spreading power of carbonizing coating, red lead and graphite paints, made at the Columbus shops of the Pennsylvania Railroad, has been published in an illustrated folder issued by the Goheen Manufacturing Company, Canton, Ohio.

Catalogue No. 32, issued by the Garlock Packing Company, Palmyra, N. Y., should be in the hands of every engineer, and a free copy will be sent to every reader who will mention this magazine. The Garlock Packing Company makes metal and fibrous packings for service against any conditions, and makes special packings for each condition.

"Hathhorn Hard Hitting Helve Hammer" is the title of a booklet issued by the Parker Hoist & Machine Company, 971 North Francisco avenue, Chicago, Ill. The statement is made that mechanical experts are amazed at the extreme strength and enormous capacity for work exhibited by the Hathhorn hammers.

Mr. J. W. Millard, naval architect and marine engineer, 32 Broadway, New York City, is distributing a handsome little book of photographs of vessels of all types designed by him.

"Authorities on Soot," a folder issued by the Vulcan Soot Cleaner Company, Dubois, Pa., will be found of interest to those desirous of cleaning the heating surface of their boilers.

S. & B. Columbia recording gages for recording the pressure of steam, water, air, gas and oil, are the subject of an illustrated folder issued by the Schaeffer & Budenberg Manufacturing Company, Foxboro, Mass.

"The Electric Equipment of a Modern Factory" is the subject of illustrated bulletin No. 230, issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York City.

Standard gears are described and illustrated in a 90-page vest pocket size catalogue issued by the Boston Gear Works, Norfolk Downs, Mass. This is a general gear catalogue, including chains, sprockets, bearings, steel devices, etc.

TRADE PUBLICATIONS

GREAT BRITAIN

Portable electric drilling machines are the subject of a catalogue published by the Light Electric Motor Company, Ltd., Ilford, Essex. "The windings of our machines have the advantage of giving a speed regulation according to the size of drill used. These drilling machines can be connected to any existing lighting circuit (incandescent) in consequence of the small consumption of current. Owing to the special construction of our motors no over-load cut-out is necessary—that is to say, should the drill 'stop dead' in going through a hole no immediate burning out of the motor can take place. The high speed drills, as shown in this catalogue, are specially suitable for boring in any kinds of wood, and the slow speed in slate, marble or soft metals. All prices quoted include packing and delivery to any part of the United Kingdom, and we are prepared to give special quotations for large quantities. All our machines are of British manufacture throughout, and we guarantee them against structural defects for six months."

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CHARLES GRIFFIN & CO., LTD., 12, Exeter Street, Strand, London, England.

"Dexine, What is It?" is the title of a catalogue issued by the Dexine Patent Packing & Rubber Company, Ltd., Stratford. The question is answered as follows: The word "Dexine" is the registered trade-mark in England, the colonies and foreign countries of the compound known by that name, and is the property of the Dexine Patent Packing & Rubber Company, Ltd., whose works are situated at Abbey Lane, Stratford, London, E., where specially designed and extensive plant and machinery were laid down some years ago for its manufacture. It was discovered eleven years ago, and, without going into any scientific technicalities, it is, briefly, a combination of vulcanized india rubber and other ingredients, prepared by a special process; it has exceedingly tough and frictionless properties, together with a valuable ability to resist the action of extreme temperatures; possessing such qualities, has led to its success for a number of purposes where other materials have been an utter failure; this success is not recorded from mere laboratory trials, which often fail when applied to the stress of actual mechanical working, but by long and exhaustive tests by a number of the leading steam users and engineers throughout the the world, and who after once giving it a trial continue to adopt and recommend its use. It is also used for purposes for which other materials were useless prior to its discovery, for instance, patent metallic boiler feed pump buckets. It is not generally known that there is a bucket that will withstand a temperature of 350 degrees F., or pumps for hot water (boiler fluid) would have been designed to use them instead of metal pistons, vulcanite rings and hemp packing, which are much more expensive. Under this invention, for which patents were taken out, "Dexine" is supplemented by an anti-friction wire gauze or "armoring." The buckets have been known to be put straight away into scored barrels and have considerably increased the utility of the pump, minus the expense of reboring; they are no trouble, and will work for a number of months without any attention whatever; it is a simple and inexpensive matter to convert existing pistons to take a pair of "Dexine" buckets, which are fitted back to back with an intermediate ring between each, acting as a support to both buckets on the forward and backward stroke. This patent bucket also applies to ordinary pumps for collieries, breweries or water works, in fact, any class of pump is improved by the use of "Dexine" in place of leather, which in a comparatively short time "perishes" or tears away at the shoulder. The value of the patent shows itself more pronounced when applied to hydraulic ram, cup and hat rings; they are perfectly elastic and flexible, and in the process of manufacture the section of rings is thickened at the bend or shoulder, and the surface being entirely covered with anti-friction wire gauze, the strength and durability of the ring is vastly increased, without, however, diminishing the elasticity; the friction is also reduced to a minimum, thus increasing the effective power; then again, it is quite simple to form these rings absolutely square at the top without any radius; this is a mater of impossibility with leather rings, and all engineers who have taken the trouble to place a square metal ring into the top of recess to give an even bearing surface for the square top ram ring (such ring to be a working fit only on the diameter of ram) have highly praised this enhanced value and longevity as compared with what they have used hitherto; in the case of hat rings used on gunmetal plungers with ports, these patent rings will not squeeze into same. For air, circulating and delivery valves the properties of "Dexine" having been previously set forth, it will at once be seen by all who have experience of these, what an excellent material it must be for the above purposes; such is the case, and a very large number are turned out every week. Hard valves are made for straight lift, and have been in work under 270 feet head of water for a number of months, and scarcely the grid mark is perceptible on the valve. "Dexine" high-pressure steam jointing is now largely taking the place of asbestos and metal joints, especially where superheated steam is employed, asbestos and many other forms of jointing, under a temperature of, say, 600 degrees F., soon crumble and shortly become powdered, metal joints have often been the cause of ruining faced flanges by galvanic action being set up between the pipe and joint, and the faces becoming deeply pitted; with "Dexine" it retains its normal elasticity, makes a perfect joint that, with care can be used many times and under the above conditions of superheated steam and a pressure of 300 pounds to the square inch. It is common knowledge that there are as many jointing materials in the market as there are rivets in a 30-foot Lancashire boiler; considerably more than half of them, however, are of foreign manufacture, being sold in England under misleading names, conveying the impression to the user that they are of English make. "Dexine" conical gage glass rings. It is not claimed that this form of packing water gages is the idea

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of the Dexine Company. Patents were taken out as far back as 1885 by two engineers of Accrington, Lancashire, but whilst the principle is perfect in every way, it did not come into general use until there was a material discovered that would suit its requirements, viz.: to retain its normal shape and elasticity under a steam pressure of 300 pounds to the square inch; without this result the principle was practically useless, hence it is only within the last eleven years that it has come into extensive use; it is advised, if you require to experience the full value of the system, that "Dexine" rings should be used; other makes will melt and run down the glass, or become hard and useless. Every genuine ring is branded with the word "Dexine," and unless so marked you lose its advantages, such as being able to be fixed in one-twentieth of the time required for the old style. and the allowance for expansion and contraction of the glass, which makes it impossible to break the tube through being overpacked. The same conditions apply to the improved packing for stuffing-boxes or glands of stop valves, sluice valves, throttle valves, etc., with the exception that this patent was taken out two years later—1887; the principle is precisely the same, only you are dealing with packing a metal rod instead of a glass tube. The higher the pressure the tighter it grips the spindle; it is always tight, and there is no waste from cutting. You may have every confidence in this high-class packing, while for durability and efficiency it is unsurpassed, and satisfaction is guaranteed provided it bears the name "Dexine."

Ships' auxiliary machinery, steam and electric, water-tube boilers, pumps, etc., are the subject of a very handsomely illustrated book of nearly 300 pages published by Clarke, Chapman & Company, Ltd., Victoria Works, Gateshead-on-Tyne. This is typographically a very attractive book, bound in cloth, and should prove valuable as a work of reference. We understand that a free copy will be sent to all inquirers who will mention INTERNATIONAL MARINE ENGINEERING. Among the auxiliary machinery described and illustrated are steam winches of many types and for all purposes; hoists of various kinds; hauling engines, steam winches, windlasses of all classes, capstans of all kinds, cranes of every sort; steering gears, steam, hand and combined; boilers, water-tube and fire-tube; steam pumps; generating plants and electrical machinery of all sorts, including capstans, windlasses, searchlights, electric locomotives, electrical drills, pumps, etc.; seamless steel lifeboats and machinery for steam launches.

With the caption of "Something Worth Attention," Preidel's Patent Propeller Company, Ltd., 110 Cannon street, London, E. C., issues the following statement regarding the Preidel propellers: "This propeller will give a greater amount of thrust or its equivalent—speed—within any given diameter and given revolutions than any open screw, and this with a very economical expenditure of power. The above statement has been proved by a number of trials, witnessed and reported upon by competent engineers and naval architects, from some of whose reports we give the following: 'Owing to the absence of wash with the Preidel porpeller and to its evident grip of the water, as proved by the promptitude with which the boat attains full speed either ahead or astern, and further remembering how quickly it arrests the motion of the boat when stopped suddenly from full speed and put to full speed astern, I am of opinion that it possesses good manœuvring qualities. Steering being easy both ahead and astern, and movement of the boat when going astern is remarkably free from that sluing which takes place with unshrouded propellers, which vitiates accurate steering when going astern. Owing to the smaller diameter of the Preidel propeller, giving within one-third of a knot of the Burgoine propeller results, I am of opinion that it is well suited for twin screw purposes, as also possibly for three or four screw purposes for steam turbine or electric motive power or for motor boat propulsion. The same reasons, small relative diameter and freedom from wave making, would seem to prove it well adapted for canal towing either single or twin screw, which, with the probable growing use of our water highways throughout the kingdom, and the gradual substitution of mechanical propulsion for horse-towage, would further enlarge its field of usefulness.' From figures obtained: 'It is evident that the Preidel propeller, as improved, gives very good results with nearly one-fifth less horsepower than the Burgoine propeller. In other words, it attained within .335 of a knot the speed of the Burgoine propeller with only four-fifths of the horsepower required by the unshrouded propeller.' 'The small diameter of the Preidel propeller and the protection afforded to its blades are strong arguments in favor of its introduction in fast motor boats, shallow draft vessels of all descriptions, and light river and sea craft generally.' This propeller has been discussed before the Institute of Marine Engineers and recorded in their transactions for February, 1907."

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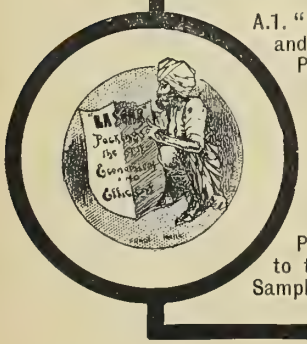
"The Lancaster" specialties are described and illustrated in a 70-page catalogue issued by Lancaster & Tonge, Ltd., Pendleton, Manchester. Metallic packings, pistons and piston valves, steam traps and steam dryers are among the specialties manufactured by this firm, who will send first orders on approval.

The "McInnes-Dobbie" indicators are the subject of an illustrated catalogue of 46 pages, published by Dobbie-McInnes, Ltd., indicator makers to the British Admiralty, 45 Bothwell street, Glasgow. These indicators are also used in the Japanese, Italian, Russian, Dutch, Danish, Spanish, Austrian, Chilian, Argentine, Peruvian and other navies. The makers state that they are also used by the leading engine builders, locomotive engineers and ship owners throughout the world. "Clients are reminded that the name McInnes-Dobbie is that by which the improved forms of our discarded McInnes indicator are now known. A few years ago, to render our indicator thoroughly suitable for the increased speeds and pressures then becoming general, we decided to improve the McInnes indicator, of which we were the sole makers. One of the chief defects in the McInnes indicator was to be found in the parallel motion gear, the links of which, under constant usage, wore out rapidly, as the pencil arm—a straight bar—was not placed directly over the piston rod, but was set to one side to allow it to move clear of the cross links and fulcrum bracket. This overhanging arm having a side strain, tended to bend the joint pins, and the friction thus set up resulted in a considerable drag on the linkage and in serious wear of the sockets and pins. The straight bar arm therefore was found unsatisfactory. To overcome this defect we experimented for some time, and after exhaustive trials adopted the form of parallel motion fitted to the McInnes-Dobbie indicators. Theoretically, this motion gear is identical with that of the older McInnes instrument, inasmuch as the joints, fulcra and marking points are in the same positions relatively to one another. Instead, however, of using straight links throughout, the long lever carrying the marking point is cranked in such a manner that it is no longer overhung but is mounted so as to intersect the vertical axis of the pressure cylinder, receiving consequently a perfectly harmonious and direct motion from the piston. Any error due to side friction is therefore entirely eliminated. The McInnes-Dobbie motion parts are of the finest hardened steel, and are produced by specially designed automatic precision machinery, with an elaborate equipment of jigs, etc., rendering each part mathematically correct and ensuring an exact ratio of multiplication (6 to 1) of the piston travel by the pencil point throughout its entire range. The motion gear is of very light weight, inertia being thereby reduced. The bearings of the several joints are broad and solid, specially hardened, and the motion is adapted to withstand severe wear and tear without slackening at the joints, with corresponding play at the pencil point—a source of inaccuracy in most other indicators. At the same time we introduced the patent piston. This being of steel, case hardened, is unaffected by steam temperatures and does not expand and stick at high pressures. It is turned from the solid, and the central space affords accommodation for any grit present in the cylinder, removing it from the cylinder walls and preventing tearing and friction. Before use this space can be filled with lubricant. The sides of this piston present less surface to the cylinder than any other and reduce friction to a minimum. The design of the indicator has been thoroughly overhauled, and the various parts strengthened, all to render it thoroughly serviceable for modern requirements. No increase has been made in the price."

ROBERT BELDAM'S A.I. PATENT METALLIC 'LASCAR' PACKING.



A.1. "LASCAR" Packings for H.P., I.P., and Low Pressures are an absolute Preventative of "Scored Rods."

ECONOMICAL AND EFFICIENT.

Estimates given for every description of Boiler Coverings.

If you are dissatisfied with the Packings you are now using, write to the undermentioned address for Samples and Quotations.

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ASBESTOS & RUBBER GOODS
OF EVERY DESCRIPTION.
CIRCULATING AND BALLAST PUMP VALVES
A SPECIALITY.

Contractors to the Admiralty, also the British, Colonial, and Foreign Governments.

All Communications to

ROBERT BELDAM, 79, MARK LANE, LONDON, E.C.

The patent submarine wire rope or chain cutting machine, for cutting wire rope or chain under water, made by Bullivant & Company, Ltd., 72 Mark Lane, London, E. C., may be operated at any convenient position or distance from the actual cutter. It is stated to be especially adapted for salvage work and in case of ropes fouling ships' propellers, dock gates, etc. The statement is made that rope up to 6 inches in circumference of any make or quality can be cut in about a minute by this machine.

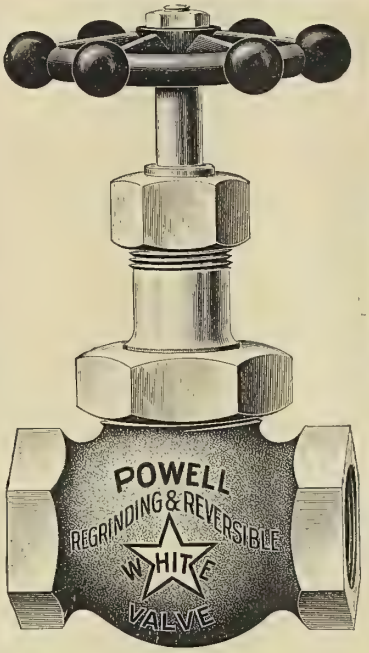
Gaines reversible propellers are described and illustrated in a very complete catalogue published by the Gaines Reversible Propeller Company, Ltd., 6 and 7 Stonecutter street, London, E. C. The blades are cast in best manganese bronze and highly polished. The boss is turned up torpedo shape; there are no corners or projections, etc., to unnecessarily churn up the water. The locking ring boss is made with the internal mechanism identical with ordinary boss, but owing to being used for larger power the screws are secured by means of locking ring, the whole being turned down together to form solid torpedo shape. The stern tubes are brass, bushed both ends with gunmetal; can be packed with grease, and are also fitted with lubricators; stuffing-box inside the boat. The reversing collars up to 30 horsepower are cast in gunmetal; above that power in cast steel; our latest type of reversing collar has ball bearings enclosed in a gunmetal case, that can be packed with grease; this combination allows the pitch to be changed without the slightest danger of running hot or undue friction. Cramp collars, cast in gunmetal, are supplied with each shaft; these when tightened on the shaft regulate the travel of the reversing collar, and relieve the lever from pressure when running full speed ahead or astern. The reversing lever, cast in gunmetal or cast steel, is fitted with sector and spring catch, polished all over. The shafting, in best manganese bronze turned true.

Weir independent air pumps, air and circulating pumps, dry air pumps and condensing plants for marine reciprocating and turbine engines are described and illustrated in a 50-page catalogue published by G. & J. Weir, Ltd., Cathcart, Glasgow. "The tendency to relieve the main engines of all duties but that of propelling the ship is rapidly becoming a feature of modern marine engine design, especially in the case of vessels of high power, and we take it as a tribute to the originality and foresight of our principal, Mr. James Weir, that the independent air pump for marine purposes, advocated and worked on by him a considerable time ago, has now taken its place as a recognized adjunct in the modern up-to-date engine room. In stationary power plants the independent air pump has now been adopted for many years, but the conditions on board ship have prevented the use of the stationary land types. The tendency, however, to employ separate engines for all auxiliary duties, as noted above, is yearly becoming more marked, and we, therefore, have pleasure in bringing to the notice of engineers and shipowners the various types of our latest specialty in auxiliary machinery, the 'Weir independent air pump.' Our present series of designs has been the result of long and careful experiment on an extensive scale and our shop equipment and pump experience give us special facilities for its production on the same high grade of manufacture as our other specialties."

Turret danger signals, stroke indicators and ships' telegraphs are described and illustrated in catalogues published by Evershed & Vignoles, Ltd., Chiswick, London, S. W. Regarding this company's helm indicators and steering telegraphs the statement is made: "The Richards-Evershed system of helm indicators, which has so long been in use in the British and other navies, depends for its action upon a simple principle. If a soft iron needle be freely pivoted at the center of two coils whose axes lie at right angles to one another, the position taken up by the needle will depend upon the ratio of the currents which are passed through the two coils. The diagram illustrates a simple means whereby the ratio of these currents may be altered by sliding a contact on a resistance. It will be obvious that the ratio of the two currents is independent of the electrical pressure applied to the whole system, since both currents depend in the same manner for their value upon the volts applied to the circuit. The Richards-Evershed instruments are therefore wound to be coupled directly on to the lighting circuit, since no variation in the volts will affect their readings. The original pattern of Richards-Evershed indicator, introduced in 1896, was fitted with a working mechanism which is illustrated in the catalogue, while a diagram shows clearly the manner in which the principle of the slider on a resistance was utilized for a transmitter. Means are provided, in every 1896 indicator, for the adjustment of the scale, should it be out at the 'midships point, or in the event of the angular deflection of the pointer not corresponding exactly with the divisions marked on the scale."

The Powell White Star Valve

RENEWABLE, REVERSIBLE AND REGRINDABLE



The only valve on the market to-day combining the above features.

The White Star Renewable, Reversible and Regrindable disc, being made of a peculiar white bronze, will resist high temperatures and the wearing action of superheated steam.

The reversible and renewable features alone make it the most economical valve on the market.

Specify Powell to your jobber and insist on getting what you specify.

LOOK FOR THE NAME

THE WM. POWELL CO

CINCINNATI, OHIO

NEW YORK: 254 Canal St., 95 Liberty St.
PHILADELPHIA: 518 Arch St. PITTSBURG: 419 Fulton Bldg
BOSTON: 239-245 Causeway St.

Cochran boilers are described in an illustrated catalogue issued by Cochran & Company, Annan, Ltd., Annan. The boilers described in this catalogue are of the vertical multitubular type and are for marine use. Various improvements have been made in the design of the firm's boilers, and the catalogue states that the company's increased facilities enable them to supply boilers at the lowest possible cost.

The Twentieth Century Binnacle and Compass Price List, published by Heath & Company, Ltd., Crayford, London, is a profusely illustrated pamphlet of 30 pages, describing in detail sextants, octants, binnacles, compasses, binocular glasses, barometers, thermometers, telescopes, course-correcting instruments, instruments for adjusting ships' compasses, etc. This firm has been in business sixty-three years, and furnishes instruments to the Admiralty, War Office, Trinity House and Board of Trade.

Herbert Morris & Bastert, Ltd., Loughborough, Leicestershire, makers of lifting machinery, are distributing book 53, which states: "Some twenty years ago there were no really good pulley blocks to be got. They were looked upon as outside the pale of engineering work, and were generally classed as hardware to be handled by ironmongers. Things were in that state when we introduced our now celebrated worm-gear pulley block, which was welcomed by engineers and by all who appreciated a really good bit of work, made, 'not to sell,' but to do the job it was sold for. Then came a revulsion. Folks would not have the old rubbish any longer, and it is generally admitted that our worm-gear block got extensively copied, some making a better fist of it than others. Now, we see the old way of things again, the old seeking after low prices, the old cutting down of quality, the old rotten stuff that disgraces the name of pulley block, and we do not hesitate to say that to-day, apart from the H. M. B. pulley block, there is not another really good pulley block to be bought. It is the H. M. B. spur-gear pulley block which is the easiest and quickest pulley block known, and has a 90 percent efficiency. Outside our own manufactures the efficiency of differential chain blocks in no case exceeds 30 percent. Those who are using any other pulley block than the H. M. B. have no idea what a really good pulley block is, and should get one from Empress Works, carriage free for trial on approval."

Marine Annunciators

Accurate and Serviceable

¶ Non-corrosive metals and "treated" coils and case make a **moisture-proof instrument.** All holes and joints filled with moisture-proof compound.

¶ Heavy wood case and backboard, finished as desired.

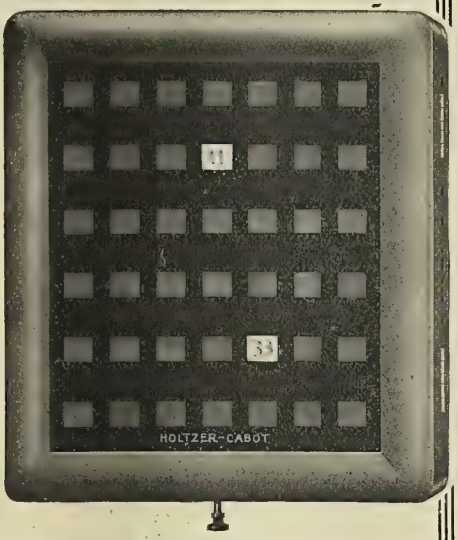
¶ Gravity drops.

¶ Drops and all connections are mounted on backboard, an important feature.

¶ No mechanism on cover.

¶ Cover hinged to backboard and fitted with tubular rubber gasket.

¶ Furnished with or without bell or buzzer.



¶ A strictly high-grade instrument.

Write for Complete Details and Quotations

THE HOLTZER-CABOT ELECTRIC CO.

BROOKLINE, MASS. U. S. A. CHICAGO, ILL.

A price list of high-pressure metallic packings is published by Robert Beldam, 79 Mark Lane, London, E. C. These packings are stated to be well known to the trade and to be used by nearly all the leading steamship lines in Great Britain and also by the admiralty and foreign navies. Mr. Beldam is also the manufacturer of all kinds of asbestos and rubber goods.

Important results from practical tests of the Hotchkiss automatic circulators are shown in pamphlet form by the Hotchkiss Boiler Cleaner Company, 1 Glengall Road, Old Kent Road, London, S. E. The figures in this book have been obtained by careful experiments conducted by the firms whose names are mentioned, and the reports are printed exactly as received. Free copies will be sent upon application to readers mentioning INTERNATIONAL MARINE ENGINEERING.

Motors and motor boats are the subject of a handsomely illustrated catalogue of 32 pages issued by C. L'Estrange Ewen, Atlantic Chambers, 45 Hope street, Glasgow. The introduction to this catalogue states: "Now that the internal combustion engine is rapidly growing in favor, even rivaling the steam engine as a means of propelling launches and as an auxiliary power for large sailing vessels, we have prepared this little booklet, believing that it will be looked at with appreciation and interest by those who, for business or pleasure, require a safe and reliable means of propulsion on sea, loch or river. In bringing to your notice certain marine engines, we wish to point out that we do not manufacture motors, and accordingly are not prejudiced in favor of any one type, and have no need to press upon a client a machine that is quite unsuitable for his particular requirements, as is so often done by makers and agents who have but one type of motor to sell. We believe that this fact will be appreciated by prospective owners when they realize the benefit in dealing with a firm who supply all types of internal combustion engines—two or four-cycle, high or low speed, using all fuels, petrol (gasolene), petroleum (paraffin or kerosene), alcohol or suction gas. We shall be pleased at any time to advise as to suitable machines for any particular purpose, and are prepared to fit any reliable motor and give a guarantee of speed, but we will not install a motor into any of our hulls which we are certain will not give our clients satisfaction. If we design and superintend the construction of vessel and installation of motor we guarantee satisfaction."

The advantages of the Hotchkiss automatic circulators are set forth by the manufacturer, Arthur Ross, Hotchkiss & Company, 1 Glengall Road, Old Kent Road, London, S. E., in pamphlet form, being a reprint of an article from *The Vulcan.*

Cargo blocks, snatch blocks, double and treble purphase blocks for wire rope, manila rope or chain, are described and illustrated catalogue of 40 pages, published by Dobbie-McInnes, Tyne Dock Corrugated Packings Works, South Shields.

"Recent Ropeways" constructed by Bullivant & Company, Ltd., 72 Mark Lane, London, E. C., is the title of a number of handsomely illustrated pamphlets, showing by half-tone engravings numerous ropeways constructed by this firm.

Jackson Bros., electrical engineers and contractors, Broadway, Plaistow, London, E., are issuing circulars illustrating and describing some of the company's electric equipment installations in a number of well-known industrial plants.

Charles Winn & Company, Birmingham, are distributing folders describing and illustrating Brooke's patent valve reseating machine, used by the British Government and many of the leading steamship lines. This tool is stated to entirely obviate the annoyance experienced by engineers when dealing with a badly cut valve seat.

"Duriflex" packing, composed of pure asbestos and brass wire gauze, together with special steam pressure resisting rubber, is described and illustrated in folders distributed by David Moseley & Sons, Ltd., Chapel Field Works, Ardwick, Manchester. This packing is stated by the manufacturer to be particularly adapted to high pressure and triple expansion engines. Numerous testimonials are published from engineers who have used Duriflex packing.

Motor launches are described and illustrated in a 24-page illustrated catalogue, issued by the Wolseley Tool & Motor Car Company, Ltd., York street, Westminster, London, S. W. The catalogue states that this company has made arrangements with the well-known firm of launch builders, the Teddington Motor Car & Launch Works, Teddington, S. W., for the manufacture of launches fitted with the Wolseley Tool & Motor Car Company's motors.

Simmance & Abady's patent Co₂mbustion Recorder appeals to everyone who uses fuel for steam raising. This device is made by Alexander Wright & Company, Ltd., Westminster. The statement is made that a fireman has two duties to perform: first, to convert the water inside the boiler into steam at a certain pressure; second, to completely burn the coal without making smoke or losing heat. In other words, to convert the fuel below the boiler into CO_2. He knows the success of the first operation by a steam gage fixed to each boiler, but he can know the success of the second operation only by a Simmance & Abady co₂mbustion recorder connected to each flue.

The Combination Metallic Packing Company, Ltd., Gateshead-on-Tyne, is issuing circulars calling attention to its metallic packings. "The 'Combined H. H.' type of metallic packing is wholly metallic (no soft packing used), and is so simple in arrangement that it can be easily fitted and will work for a considerable time, with little or no attention. The series of springs at the top of the packing exert a pressure on the gunmetal cases, which, resting on the bevel of the white metal wearing segments, bring the latter up to the rod, sufficient to counteract the steam pressure, so that there is hardly any friction on the rod. The vital part of the packing is necessarily the wearing segments, which are the only parts that are in contact with the rod. These are composed of a special alloy that will not wear or score the rods under any conditions, and is only made by this company, who have, after some twenty years' experience, perfected this metal. A feature in this packing is the efficient supply of oil obtained by an arrangement of lubrication between the outer and the inner packings, providing a continuous band of oil around the rod. The gunmetal cases in the stuffing-box containing the white metal wearing segments are free to move with the rod, should there be any lateral movement. This also applies to the floating rings in the extension piece, which bear against the rod by means of circumferential springs."

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CHRISTOPHER STREET
FINSBURY SQUARE, E. C.

NEW YORK
WHITEHALL BUILDING
17 BATTERY PLACE

BUSINESS NOTES

AMERICA

FIREPROOF BOARD FOR NEW STEAMSHIPS.—The Composite Board Company, 26 Cortlandt street, New York City, has received orders for its composite fireproof board for use on the new Clyde Line steamship building at Cramps, and for the new Mallory liner *Brazas*, building at Newport News. The same company has also received a large order for composite board for the inside finish of 180 steel passenger coaches for the Pennsylvania Railroad.

A NEW BOAT CLUB.—The Snapper Boat and Fishing Club has been organized, with a club house at Broad Channel, Rockaway Beach, N. Y., for the purpose of encouraging motor boating and fishing sport. E. J. Holzman is president, and he and the following members are the organizers of the club: Robert Cornwall, J. T. O'Connell, George Grove, Harry Grove, P. W. Beagan and Victor Stein.

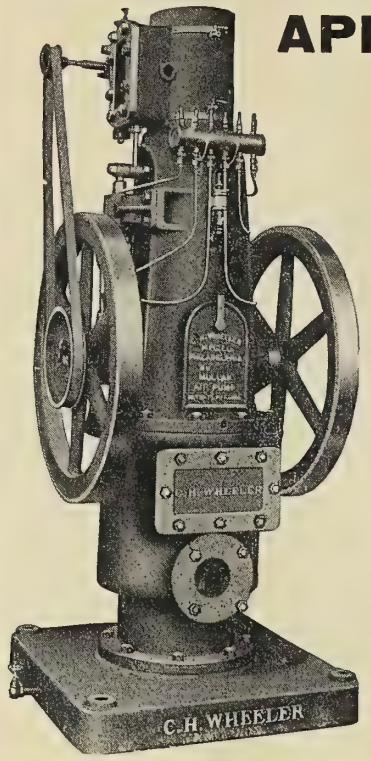
THE STANDARD ROLLER BEARING COMPANY, Philadelphia, Pa., has increased its capital of $3,500,000 to $5,000,000. Large additions are now being made to the plant and equipment for the purpose of enlarging the department for the manufacture of roller bearings for shafting hangers and also for the establishment of an entirely new department for the manufacture of roller bearings for trolley cars. The saving by the use of roller bearings on trolley cars amounts to about $300 a year per car, and the demand is so great that a large addition to the plant is required to take care of the business.

THE "AGRIPPA" DROP-FORGED PIPE FITTINGS WRENCH has been placed on the market by J. H. Williams & Company, Brooklyn, N. Y. The manufacturer states that the demand for an efficient wrench for use on fittings and in such places where the ordinary type of wrench cannot successfully be used, has been the motive for bringing out the "Agrippa," which is the result of the company's more than twenty-five years experience in chain wrench production. The handle and jaw are drop-forged and the chain is hand-made. The quality is the same as the "Vulcan." This wrench is said to be particularly efficient on short nipples, flanges and in such places where limited space does not permit the use of a wider or double-jawed wrench.

A LONG-FELT WANT.—Many of our readers have doubtless been troubled by their inability to secure a satisfactory flexible electric desk lamp. To meet the difficulty of obtaining such a lamp the Holtzer-Cabot Electric Company, Brookline, Mass., has put on the market "The Electric Flexilite," which it states is the most satisfactory desk and wall lamp yet designed. The arm is self-balancing and adjustable to any height, swinging over a 5-foot circle and remaining automatically in any desired position. A shade is made especially for this lamp, and is so pitched as to eliminate most of the blinding glare of high-finished paper. This lamp is also made in combination with an electric fan, an arrangement which certainly will appeal to those compelled to work late on hot summer nights.

REGARDING MILLS' ENGAGING AND DISENGAGING GEAR for boats, launches, etc., Capt. A. P. Lundin, manager of the Welin Quadrant Davit Company, 17 Battery Place, New York City, which is the sole agent in the United States for this gear, gives us the following statement of advantages of the Mills over all other gear: "No other boat gear can be engaged with so much ease, expedition and safety, and without preparation of any kind is ready to disengage immediately afterwards. Every sailor can understand it; impossible to make a mistake; does not require a trained crew; it requires no preparation for hooking or unhooking; only one way to hook and only one way to unhook; causes no obstruction in any part of the boat; it is always ready for use; there are no loose parts to be lost or misplaced; no safety pins to be forgotten; no lanyard across the center of the boat to be tampered with by passengers, thus removing all liability of pulling anyone out of the boat after disengagement, or of preventing the disengagement; no rods along the bottom to be fouled by ice, etc.; gear may be fitted to stem or stern post, or any other convenient position; boat can be hoisted close to davit head; when gear is disengaged there is nothing to foul or catch the gunwale; no fear of accident to fingers when hooking on in rough seas; the block is hooked on, very little effort is required, and engagement will be instantaneous; it is perfectly under the control of the person in charge of the boat; certain simultaneous disengagement; impossible to cause an accident through dropping the boat too far from the water, as often happens to slip gears; boat cannot be disengaged until nearly water borne; boat can be disengaged with a good towing strain on the falls; boat can be disengaged when ship is steaming through the water in all kinds of weather, and has been tested with perfect success up to 16 knots speed."

HIGH VACUUM APPARATUS



SUCTION-VALVELESS AIR PUMPS
Horizontal and Vertical Designs

SURFACE AND JET CONDENSERS

PUMPS FOR EVERY SERVICE

C. H. WHEELER MFG. CO.
MAIN OFFICE AND WORKS, PHILADELPHIA
NEW YORK PITTSBURG SEATTLE CHICAGO ST. PAUL CLEVELAND SAN FRANCISCO

NEW MANUFACTURING PLANT FOR TROY.—It is reported that Davidson & Company, Belfast, Ireland, manufacturers of Sirocco fans and blowers, will establish a large plant in Troy, N. Y., under the name of the Sirocco Engineering Company. It is stated that the most important question the new corporation has to contend with is how to meet the demands of consumers rather than how to secure the business. The parent company employs more than 900 men. Many of the leading navies are equipped with Sirocco fans and blowers.

THE CHICAGO & ALTON RAILWAY COMPANY has decided to use a marine engine made by the Anderson Engine Company, Shelbyville, Ill., in its first motor car. The car is already finished, and stands in the company's yards at Bloomington, Ill., awaiting the completion of the engine. The engine is of the four-cycle water-cooled type, and is being built at the Shelbyville factory. It is one of the company's improved four-cylinder marine engines, and will have a bore of 9¼ inches and stroke of 11 inches. The engine will be installed in one end of car, and the transmission instead of being direct will be through generator and storage battery. Each axle is fitted with a 100-horsepower motor, and while the car was built only for experimental purposes it is figured that it will be able to run at least 65 to 70 miles per hour.

A SUMMARY OF ADVANTAGES of the Welin quadrant davit is furnished us by Capt. A. P. Lundin, manager of the company, 17 Battery Place, New York City, as follows: "Always ready for instantaneous use; no special training called for on part of the crew; perfect safety in handling; proof against corrosion; will swing the boat out in 20 to 45 seconds, regardless of any reasonable list the ship may have; no stays whatever are required; can be run out to, and stopped at, any desired point in their travel; they will handle with ease and great rapidity the largest lifeboats (including steam launches), and require only two men for their manipulation; the boat may be manned before the chocks are released; one pair of davits may conveniently be used for two or more boats standing abreast (*i. e.*, one inboard the other), and the boats may either be stowed well in on deck or along the edge; their introduction renders possible the economizing of valuable deck space in several directions; their weight is considerably below that of the ordinary davits."

MARINE SOCIETIES.

AMERICA.

AMERICAN SOCIETY OF NAVAL ENGINEERS.
Navy Department, Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
12 West 31st Street, New York.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.
314 Madison Avenue, New York City.

UNITED STATES NAVAL INSTITUTE.
Naval Academy, Annapolis, Md.

GREAT BRITAIN.

INSTITUTION OF NAVAL ARCHITECTS.
5 Adelphi Terrace, London, W. C.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND.
207 Bath Street, Glasgow.

NORTHEAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS.
St. Nicholas Building, Newcastle-on-Tyne.

INSTITUTE OF MARINE ENGINEERS, INCORP.
58 Romford Road, Stratford, London, E.

GERMANY.

SCHIFFBAUTECHNISCHE GESELLSCHAFT.
Technische Hochschule, Charlottenburg.

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BUSINESS NOTES

GREAT BRITAIN

THE GOVERNING OF A MARINE ENGINE is a subject which has interested generations of engineers. It has afforded hundreds of inventors a problem of great difficulty to solve, and the world, as a result, is presented with a large number of devices designed to effect the purpose, but with very varying success. It is not certain whether shipowners, who are really more interested in this question than other people, quite fully appreciate the importance of a really efficient governor for marine engines. The result of racing is strained engines, broken shafts and loose seats. The flaw in a shaft is no doubt often started by some abnormal strain, and its extension is only a question of a certain number of impulses before final fracture takes place; for example, a flaw may be started in heavy weather, while the shaft finally fractures months afterwards during ordinary conditions, hence, to prevent abnormal strains in the machinery, effective governing is of immense value to the shipowner, as apart from the expense of installing a new shaft, the loss of earning capacity by the ship lying up is a serious item. Again, when on a voyage, if the governing of the engines can be absolutely and automatically controlled in a reliable manner within safe limits, much better speed can be maintained, and the saving in coal and time thus effected carries with it the corresponding saving in cost of running the ship, including the feeding of the whole ship's company. Then above the commercial considerations there is the predominant one of safety of passengers and crew, and it will be recognized that an efficient governor is an important factor in this matter. Andrews' Governor Patents, Ltd., 64 Victoria street, Westminster, London, S. W., has placed on the market a governor which the manufacturers state meets the requirements for an apparatus of a simple and reliable character, which will prevent racing either from the submergence of the propeller being varied, or from other causes which may relieve the engine of a part or the whole of the resistance against turning.

THE TIMES in referring to the case of a large sailing vessel laden with coal, in which fire broke out, says: "After the dismal accounts of losses by fire which have had of late to be recorded, it is pleasing to be able to write of a fire which was rendered harmless by the application of scientific methods of extinguishing." The vessel in question was fitted with a fire extinguisher made by the Clayton Fire Extinguishing & Ventilating Company, 22 Craven street, Strand, London, W. C. "It consists of a sulphur furnace, blower, engine and cooler, and relies for its action on the rapid generation of Clayton gas from the combustion of roll sulphur. One use of the machine is for preventing and extinguishing fire on board ship by rapidly generating Clayton gas and forcing it under pressure into the hold or compartment to be protected, and reducing the temperature of the hold or compartment in which the fire has been extinguished by circulating the gas-laden atmosphere through the cooler, and by the same process reducing the temperature caused by the heating of any cargo."

AN INTERESTING SERIES OF EXPERIMENTS with ships' signal lamps has been carried out by Messrs. Davey & Company, of West India Dock Road, London, on the War Office ranges at Shoeburyness, when many useful and valuable results were obtained. The object of the experiments was to ascertain the relative value of the different burners now in common use in the various signal lamps used on board ship, and to ascertain facts as to their power of range under the varying conditions that would exist in their actual use at sea. There were present on behalf of the Marine Department of the Board of Trade, Mr. D. G. Watson, Consultative Branch, Victoria street, S. W., and Lieutenant M. H. Clarke, R. N. R., of the Surveyor's Branch, Mark Lane, E. C., as well as several officers of the Royal Artillery acting for the War Office authorities. The night was clear and a good one for the experiments. The first series of tests was made at the 1-mile range with Messrs. Davey's patent side lamps, with white dioptric lenses and colored slides fitted with their standard 1-inch cone burners, and when the results had been noted the same lanterns were fitted with burners of various patterns in common use down to the least costly. Similar tests were then made with side lamps with solid dioptric lenses and with ordinary plain lenses. These lamps had been previously fitted very accurately into screens corresponding with the screen boards used on board ship. They were first shown horizontally from right ahead to 2, 4, 6, 8 and 10 points, and then, having been placed horizontally at 4 points, they were heeled over to 5, 10, 15 and 20 degrees, being alternately depressed and elevated. The quality of light visible was recorded at each experiment, and useful and valuable results were obtained as to the power of the respective lenses and burners, and as to the degree of divergence of the light under the heeling over conditions. These side lamps and burners were next shown at the 2-mile range, being the minimum limit under the Board of Trade regulations, and the above set of tests—with the exception of heeling over—were repeated, and records made of the results of each test. It was clearly shown that some of the common classes of burners, although of the standard width of wick, were almost useless, while the tests demonstrated the fact that it is quite easy to get the required range provided proper lenses and burners are used. At the 2-mile range, 'Not Under Command' lamps, with ruby globes, were exhibited from the base, the lamps being the ordinary pattern, with various burners. At this distance it was hardly possible to see some of the signals, and there would seem to be little doubt that there is great need for improvement in these lamps, both in the color of the globes and in the power of burner used. Anchor lamps were also exhibited at the 1-mile range with similar sets of burners as the side lamps, and even the commonest class of burner showed fairly well at this range, although there was a marked superiority in the brilliancy of the dioptric over plain, and of the better class of burners over the inferior sorts. This was particularly the case at 2 miles, when the better lamps were still distinctly brilliant, while some of the inferior ones could scarcely be seen. Stern lamps were also exhibited, and easily showed their required range of 1 mile, with a capacity for a much greater distance. The lanterns used were Messrs. Davey's improved wind-proof pattern, which enabled the tests to be carried out in a very satisfactory manner, for although a stiff easterly wind was blowing the lights showed no signs whatever of flickering. By permission of the War Office, the whole series of experiments were very ably carried out by Capt. Hutchinson and other officers of the Royal Artillery, under the instruction of the commanding officer, Major Lowe, R. A., and what in ordinary circumstances should have been a very difficult set of tests was rendered comparatively easy by the completeness of the arrangements made."

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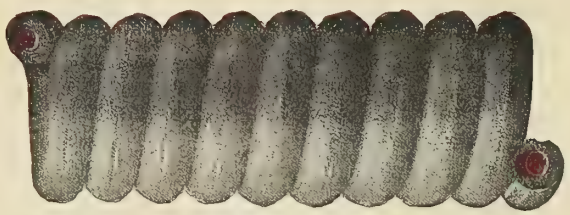

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